AUGUST 26, 1944

Railway Age

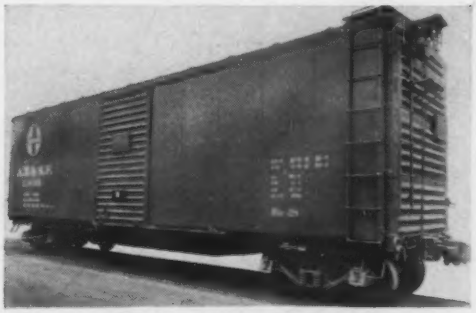
Founded in 1856

THE LIBRARY OF CONGRESS SERIAL RECORD
SEP 27 1944
COPY
GIFT

"ALL THE WAY" WITH YOUNGSTOWN

STEEL SIDES STEEL DOORS

CAMEL FIXTURES



Continuing a program begun in 1936, the Sante Fe is now converting 1500 additional steel-underframe, wood-superstructure box cars to modern all-steel cars. These cars will be 10 ft.-6⅛ in. inside height, and 9 ft.-3⅝ in. inside width. Youngstown steel sides and doors and Camel roller lift fixtures are being used in this program.

YOUNGSTOWN STEEL DOOR COMPANY

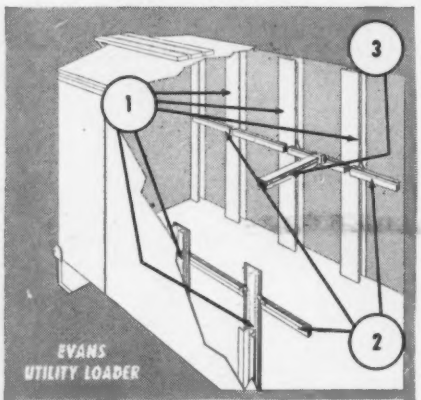
CLEVELAND CHICAGO NEW YORK YOUNGSTOWN

EVANS UTILITY LOADER WILL INCREASE PAYLOAD 1/3

The Evans Utility Loader is a modern device to replace dunnage or bracing—is fully adjustable to all types of shipments—is a permanent part of the box car.

UL FOR THE GOOD OF THE RAILROADS

Modernize Today for Tomorrow's Competition



ONLY 3 WORKING PARTS

1. Vertical steel plates fastened to side walls of freight car.
2. Horizontal wall members extending between vertical plates—independently adjustable up and down.
3. Cross members which hold the load in place engage the horizontal wall members—are locked in position—corrugations fit into each other.

Getting more revenue per box car—increasing the payload 1/3—is made possible by Evans Utility Loader equipment.

Geared to the needs of the railroads and shippers, this modern device permits heavier loading—from floor to roof and from end to end—with absolute safety for all types of cargo, regardless of shape or size.

Fewer cars are needed with this general purpose equipment—it puts box cars on a full-time, full-capacity war basis, and permits combination shipments to different destinations.

And when peace comes, box cars modernized with the Evans Utility Loader will produce economies for railroad and shipper that will defy competition and attract patronage.

★ ★ ★

Vision to Anticipate the Needs of Tomorrow Creates New Industries Today

L. Evans
PRESIDENT

EVANS

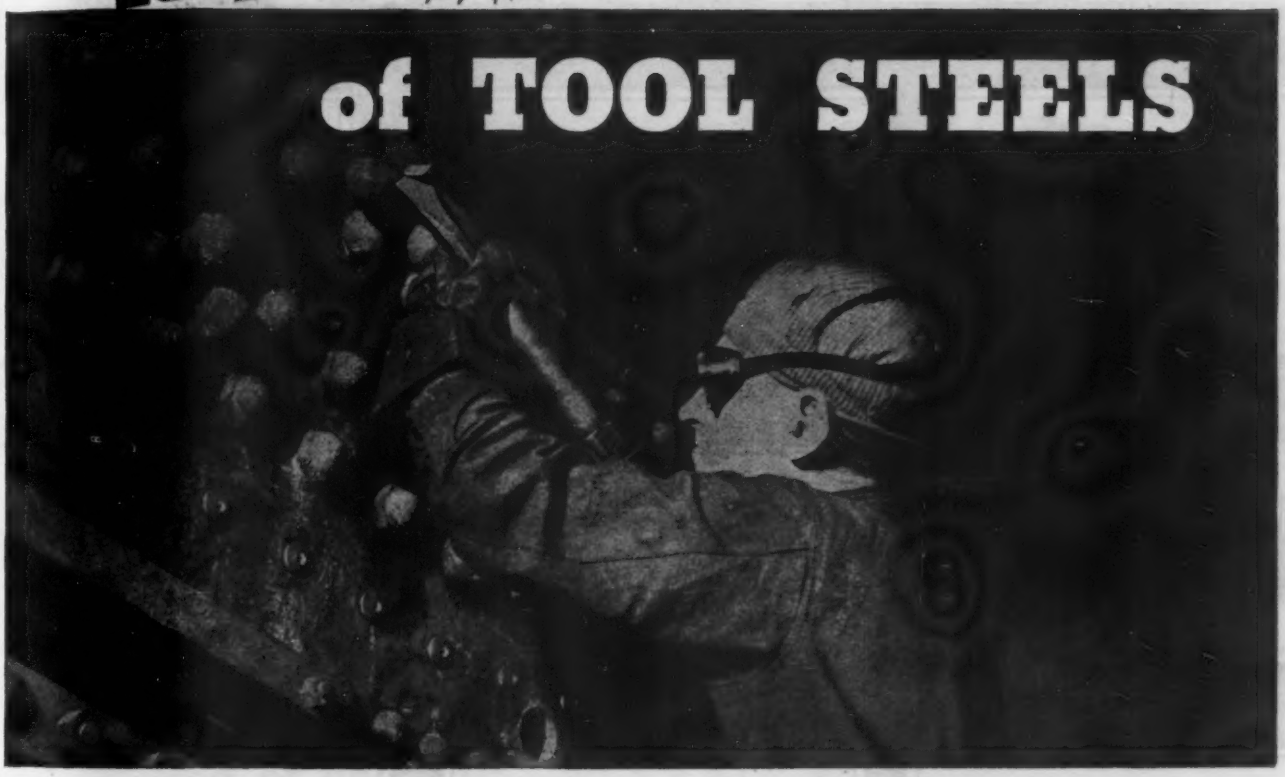
EVANS PRODUCTS COMPANY

DETROIT 27, MICH.

Evans War Products: Machine Gun Mounts • Tank and Automotive Heating and Ventilating Equipment • Evanair Water Heaters • Aircraft Engine Mounts • Airplane Landing Gear Beams • Battery Separators • Prefabricated Houses • Molded Plywood Products • Skyloader • Utility Loader • Auto-Loader • Auto-Railer • Auto-Stop • Stampings • Evansir Domestic Heating Equipment

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 193[illegible], at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, [illegible] cents each. Vol. 117, No. 9.

SHOCK TROOPER of TOOL STEELS



Years of experiment and development work have endowed Bethlehem Omega Tool Steel with tremendous shock-resisting properties—the ability to withstand drastic and repeated impact at normal temperatures.

Its normal working hardness is 58-60 Rockwell C; at this figure, it possesses an unusual Charpy impact value. Under test, it shows considerable elongation and reduction of area. This combination of hardness, toughness, and ductility makes it suitable for a wide variety of applications.

Omega was developed primarily for use in cold-battering tools and for machine parts that are obliged to withstand severe shock. It is used successfully in pneumatic chipping chisels, hand chisels, punches, shear blades, cold-forming dies, calking and flue-beading tools, and all other tools in which the ultimate in shock resistance is required.

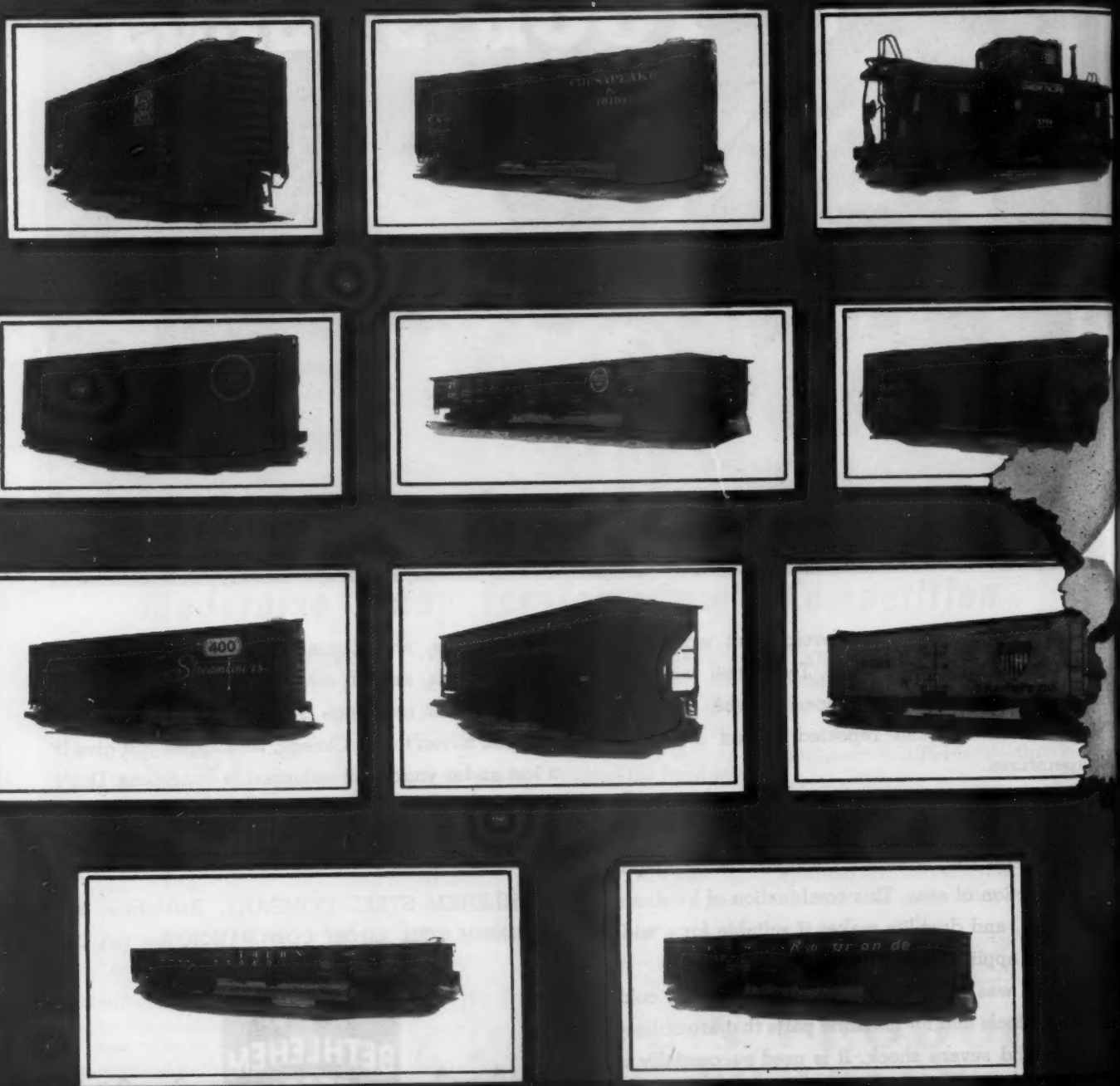
If you haven't used Omega, we suggest you give it a test under your most unfavorable conditions. Don't baby it, don't coddle it. Give Omega the works. We think you'll agree that it can take punishment.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.
BETHLEHEM STEEL EXPORT CORPORATION, New York City

★ ★ ★ BETHLEHEM STEEL ★ ★ ★

OMEGA... one of Bethlehem's BIG 8 Tool Steels

MT. VERNON

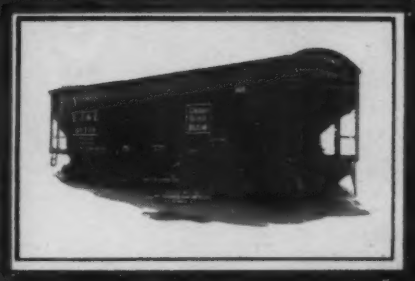


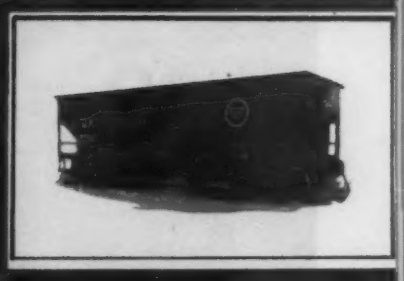
PORTER
"Better Built"
Equipment
Established 1866

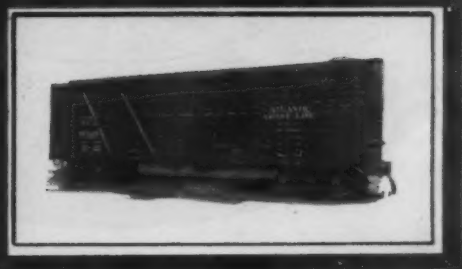
MT. VERNON

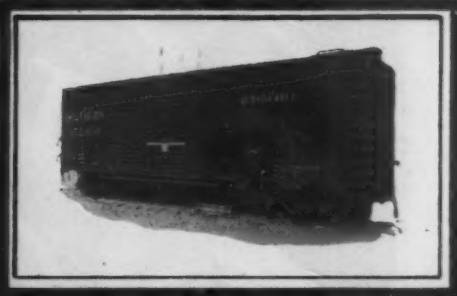
Div. of H. K. PORTER

NCARS ...IGHTY JOB!









Mt. Vernon Car Mfg. Co's. facilities and its location in an area of adequate labor supply, assure the best possible deliveries under wartime conditions.

LOCOMOTIVE DIVISION: Diesel, Diesel-Electric, Electric, Steam, and Fireless Steam Locomotives.

PROCESS EQUIPMENT DIVISION: Agitators, Mixers, Blenders, Ball and Pebble Mills, Autoclaves, Driers, Digesters, Condensers, Evaporators, Fractionating Columns, Heat Exchangers, Pressure Vessels, Tanks, Vulcanizers, Jacketed Fittings.

QUIMBY PUMP DIVISION: Screw, Rotex, Centrifugal, Chemical Pumps.

ORDNANCE DIVISION: Projectiles, Heavy Forgings, Breech Blocks, Winches.

NCAR MFG. CO.

...ANY, Inc.

...SWICK, N. J. • NEWARK, N. J.

RAILWAY CAR TRUCKS . . BLIND RIVETS . . . ELECTRIC STEEL CASTINGS . . . AXLES (Front and Rear) FOR TRUCKS AND BUSSES . . . AXLE HOUSINGS GEARS AND FORGINGS . HIGH SPEED DRILLS AND REAMERS . . INDUSTRIAL TRUCKS AND TRACTORS . . . METAL SPOKE WHEELS . . . TRANSMISSIONS

ENGINE FAILURE IN INDIA

Weeks before the Japs began invading India last spring American railroaders were operating portions of the Bengal & Assam Railway—virtually the only supply route for General Stilwell's troops in North Burma.

Under Colonel Jack Appleton, former general manager of the Pennsylvania's New York zone, they have wrestled with all kinds of queer railroad practices and queerer customs, such as giving the sacred Indian cattle the right of way.

Being Americans with an inborn sense of humor, they laugh at emergencies. They even get fun out of engine failures, for engines do fail on the best of roads.

Major F. H. Winget, an officer of a Railway Operating Battalion, of New York Central, was going important places with troop trains on the Bengal & Assam when one of the trains made a water stop.

A little later the injector broke. Cussing, the engineer gave her the air, made an unscheduled stop, then investigated. He got the surprise of his life.

Right back of the tank was a carload of elephants. They rode in an open stock car, provided with plenty of ventilation. From the head end of that car an elephant's trunk was acting as a hose connection with the tank.

The owner of that trunk had been railroading before. Being thirsty, this big bull had used the little finger at the end of his trunk to lift a manhole cover in the tank's right rear corner! Having filled his stomach and sprinkled the right-of-way scenery, he had withdrawn his trunk and gone to sleep on his feet!

The fire was knocked, with only enough water left to wet the sides of the tank. The engine was dead—a complete failure.

When a relief engine was sent out to forward that train, Major Winget's representative doubted the engineer's story. But when the stalled train again got under way, there wasn't any question about it, for the thirsty bull tried to get water again out of that tank.

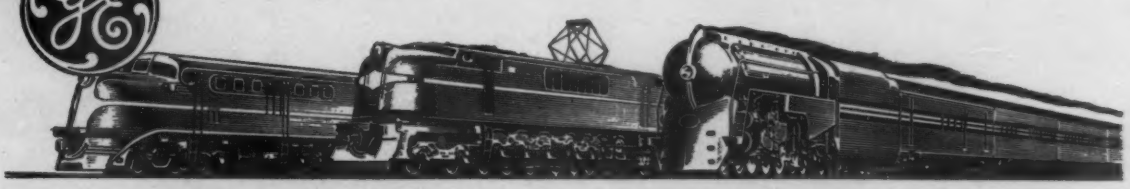
The crew could use the laugh they got out of that "failure" for it's hell on wheels to be railroading in war-torn India.

*—The Trackwalker**

★ ★ ★

Alco GE

After five years of almost continuous operation, three Alco-G.E. diesel-electrics are still working full time, smoothly and economically. Averaging 21.8 hours of work a day, each unit has piled up more than 40,000 locomotive-hours and has been overhauled only once.



AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

Copr., 1944, American Locomotive Company and General Electric Company **Reg. U. S. Pat. Off.* 113-94-9000

These Roofs Help Win...

"THE BATTLE OF TIME"

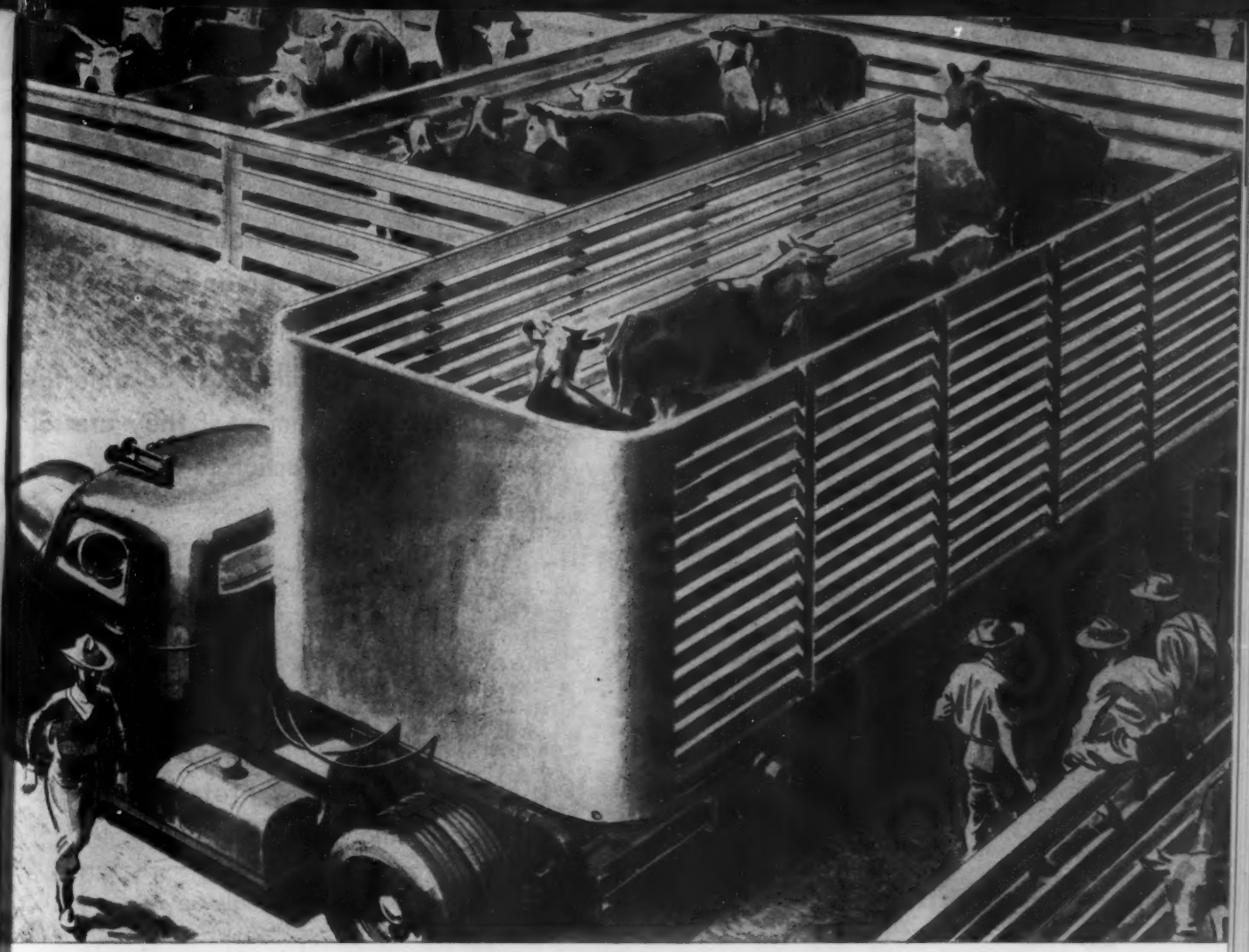
Time is important to railroads in more ways than one . . . Time between roof repaintings and replacements, for example. The illustration below shows several ZINCGRIP-PAINTGRIP car roofs that were installed some time before the war. There has been no enforced idleness on account of roof repairs or repainting.

ZINCGRIP-PAINTGRIP has two big advantages for car roofs. First, it can be formed tightly to the most intricate designs—this without injuring the zinc coating . . . No peeling or flaking, no unprotected seams to invite rust attack. Second is the PAINTGRIP feature, the mill-Bonderized finish that takes and holds paint. Paint jobs last longer, because there is no forming of zinc salts between the galvanizing and the paint to induce drying and peeling.

Your freight and passenger car roofs look better and last longer when constructed of ARMCO ZINCGRIP-PAINTGRIP sheets. Maintenance costs definitely go down, while fabricating costs are no more and frequently less. Also consider this special coated sheet steel for air-conditioning ducts, or any other application where sheet metal must be severely formed and painted immediately. Shall we send you complete information? Armco Railroad Sales Co. Incorporated, 2351 Curtis Street, Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

ARMCO ZINCGRIP-PAINTGRIP SHEETS



RATION POINTS IN THE ROUGH MUST ROLL

Bendix-Westinghouse salutes those intrepid owners and operators of Motor Transport Equipment who have done and are doing such a magnificent job in meeting the most complex food problem ever to face this nation ★ To those indefatigable maintenance crews, too, goes the plaudits of millions. But for their ingenuity Americans might have fared much worse on the "belt line" ★ Privileged to serve with the leaders in this industry, Bendix-Westinghouse is justly proud of the record its Air Brakes and Pneumatic Control Equipment has played ★ Wherever you are, whatever your business, the performance of genuine Bendix-Westinghouse Air Brakes have, through their war service alone, proven themselves indispensable to the modern way of transportation. Your nearest Distributor will be happy to tell you of the many exclusive advantages you can't afford to miss in the "Two greatest names in braking."

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY . . . ELYRIA, OHIO

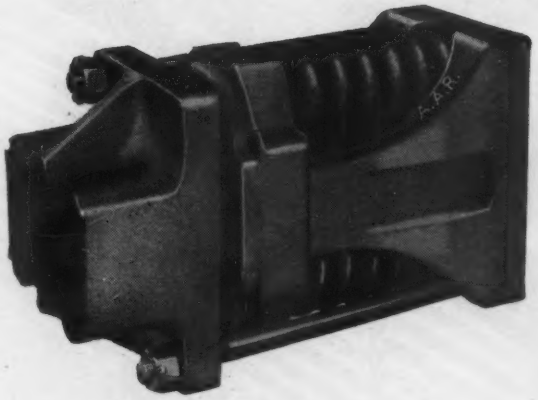
Bendix-Westinghouse

AIR BRAKES

AND PNEUMATIC CONTROL DEVICES

IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES

Car & Lading Protection



Type M-17-A—22⅜" long
A.A.R. Approved

Type M-50-B—20⅛" long
A.A.R. Approved

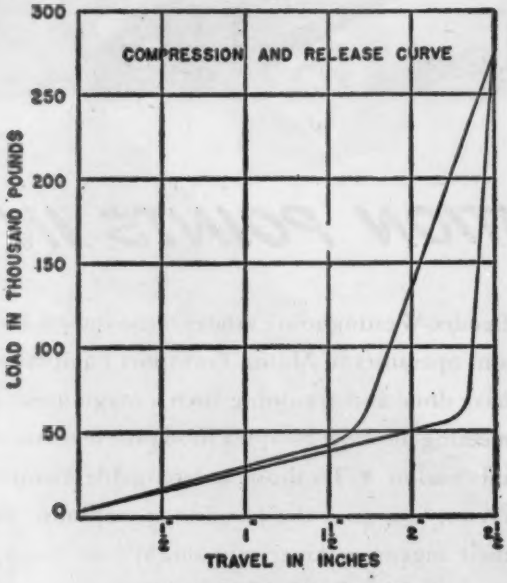
NATIONAL K-4 DRAFT GEAR
Designed especially to meet the requirements of high speed passenger service.

Heavier loads, longer trains and higher speeds make new demands on every item of freight car equipment.

Draft gears especially must be able to stand terrific punishment if they are to provide proper protection to the car and its contents.

NATIONAL FRICTION DRAFT GEARS

made of Naco Steel are designed to meet these extreme conditions. Their smooth action and high ultimate capacity affords the greatest protection to the car and lading.



Closure chart for Type K-4 Gears

Specify NATIONAL Draft Gears for efficient, economical service.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.
General Offices: CLEVELAND, OHIO
Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Passenger and Freight Traffic in 1943 was more than twice as great as in 1918.

However, FAR MORE than twice as much rolling stock was equipped with N·B·M Bronze Parts in 1943 as in 1918.

N·B·M facilities have been increased to meet wartime demand and will be yours for postwar production.

N·B·M
CAR JOURNAL BEARINGS
BRONZE ENGINE CASTINGS

NBM
NATIONAL BEARING
METALS CORPORATION
ST. LOUIS · NEW YORK
AMERICAN Brake Shoe COMPANY

SCALING THE SIERRA NEVADAS. Railway engineers met and conquered great obstacles in crossing the Rockies, but tribute should

INGENUITY...

The American genius for overcoming obstacles has nowhere been more gallantly displayed than in the building of the railroads. A chasm to span, a great river to cross, a mountain to scale—these were only a challenge, to be accepted with supreme confidence.

History records many outstanding feats as railroad engineers devised ways for piercing the Alleghenies, bridging the Mississippi, and negotiating the Rockies. Actually, every foot of track laid was a major accomplishment and an exciting adventure.

From the Atlantic to the Pacific, like irrigation ditches bringing life-giving water to parched earth, the railroads spread out to bring and maintain a flood of civilization with their shining rails.

The stability of American railroad engineering has no finer testimonial than the service rendered in wartime transportation. With schedules stepped up in speed and frequency, the capacity of the railroads to maintain their stupendous task of moving men and materials, in quantities heretofore considered impossible, is a glorious tribute to the sound basis upon which the roads were built.

Maintenance has played no lesser role. The incessant pounding of heavily loaded trains has proportionately enhanced the responsibility and work of maintenance.

That maintenance crews be swiftly and safely mobile has been Fairmont's contribution to the railroad wartime task. It is with deep gratification that Fairmont can point to the large number of Fairmont Railway Motor Cars in

OF ALL THE CARS IN SERVICE TODAY

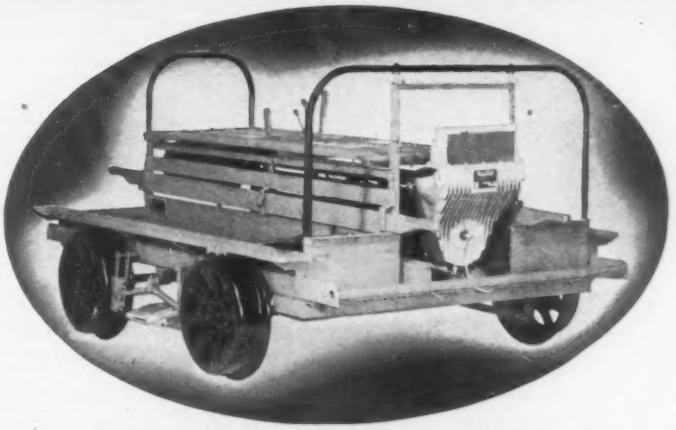
be accorded all the builders of our early railways. Their exploits constitute one of the most inspiring chapters in America's history.

operation, and their splendid record for endurance and efficiency. Their record, like that of the railroads, can be directly attributed to sound construction practices faithfully followed. Fairmont Railway Motors, Inc., Fairmont, Minnesota.

Fairmont

RAILWAY MOTOR CARS

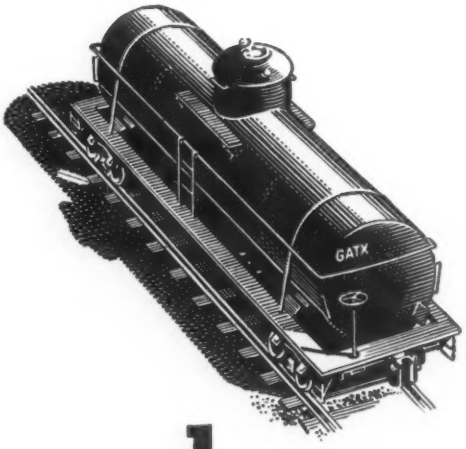
Performance ON THE JOB COUNTS



M14 Series G—This is a 2 to 6 man car for light section work, including hauling of loaded trailers. May be equipped with two-speed gear for heavier duty. Bulletin 397.

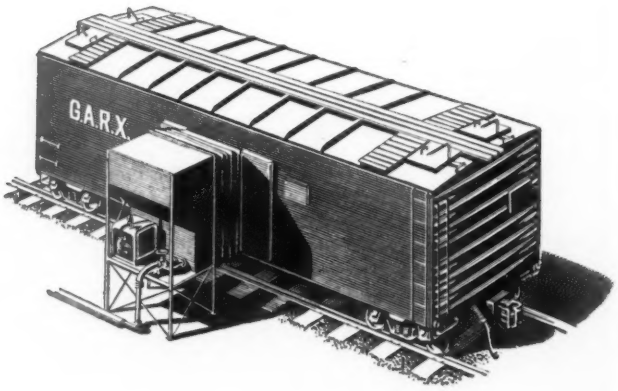
. MORE THAN HALF ARE FAIRMONTS

To Bring You Fresh Fruit for Breakfast



1

General American Tank Cars carry chemicals used to protect fruit orchards.



2

The ripe fruit, ready for shipment, has its flavor guarded by General American Precooling Service.

3

...is then kept FRESH on the way to you in General American Refrigerator Cars.

One of a series of advertisements designed to show General American's contribution to everyday living and our part in the efficiency of American Industry during war and peace.

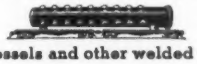
GATX GENERAL AMERICAN

GENERAL AMERICAN TRANSPORTATION CORPORATION

Chicago

Builders and operators of specialized railroad freight cars

Bulk liquid storage terminals



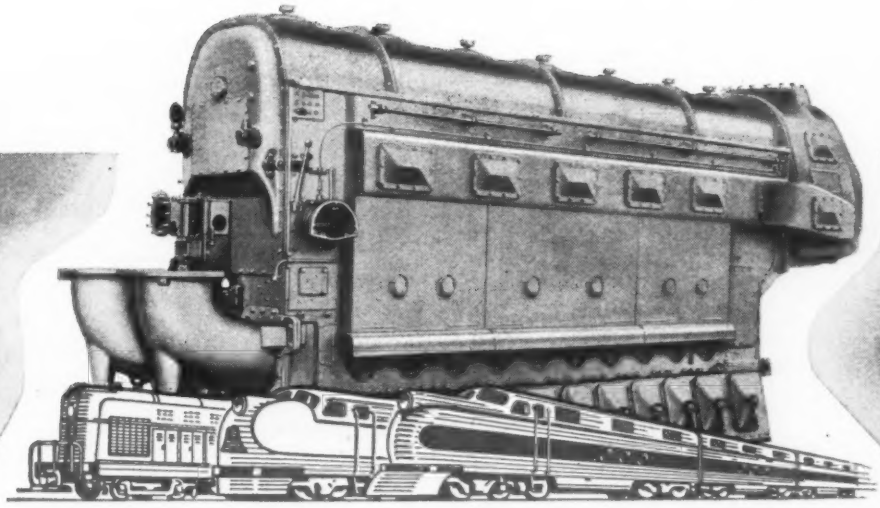
Pressure vessels and other welded equipment

Aerocoach motor coaches

Process equipment of all kinds

Precooling service for fruits and vegetables

Here's Fast, Economical Servicing for Diesel Locomotives



Fairbanks-Morse Diesel Locomotives are serviced faster and at lower cost because:

1. They use *2000-horsepower* Diesels... use from one to three less engines and main generators per locomotive.

2. Their Diesels are simpler . . . have no valves or valve-activating mechanisms, no cylinder heads, fewer cylinder liners.

Fairbanks-Morse Locomotive Diesels have *proved* their merit . . . more than two million horsepower are in active service.

Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

A name worth remembering!

FAIRBANKS-MORSE

THIS DIESEL HAS A PLACE IN YOUR POSTWAR PLANS

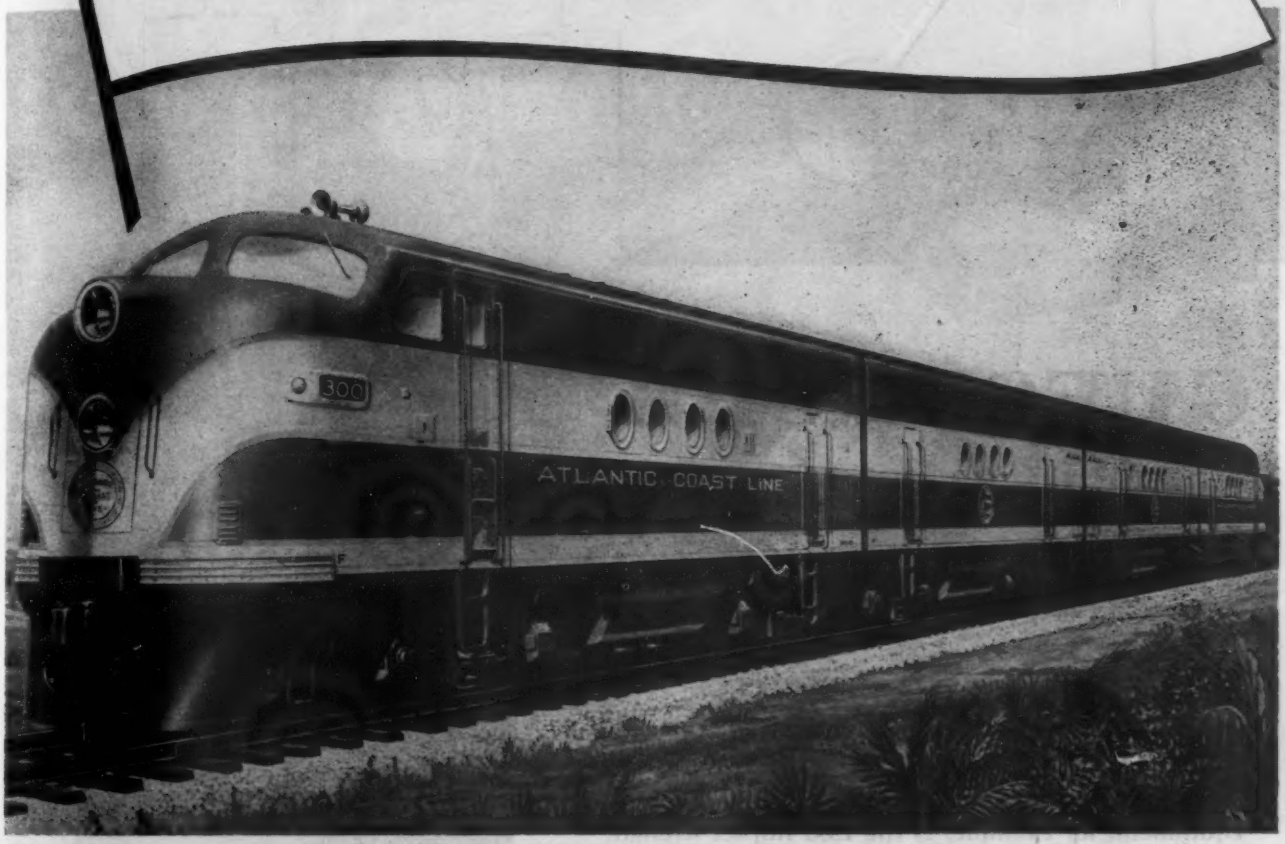
Of the thousands of diesel-powered industrial and main line switching locomotives now in service, hundreds are powered with Cummins Diesels.

In this vital role—in helping to handle history's greatest mass movement of men and materials—Cummins Diesel Power has given another striking demonstration of its economy and dependability in heavy-duty, 24-hour-a-day service throughout the world.

This wartime accomplishment—plus the advances made by the builders of Cummins Diesels in the development of greater horsepower output per pound of engine weight through higher engine speeds and other outstanding engineering achievements—explains why Cummins Diesel Power is today figuring so prominently in the postwar planning of railway equipment designers, builders, and operators.

CUMMINS ENGINE COMPANY, INC., Columbus, Indiana.

In the Service *with the* COAST LINE



• Atlantic Coast Line's huge Diesel locomotives in freight service and its many famous Diesel-powered trains in passenger service are solving the emergency traffic problem for many Eastern cities, ports and military concentrations.

Peacetime progressiveness assured record efficiency when the handling of wartime's tremendous traffic was required.

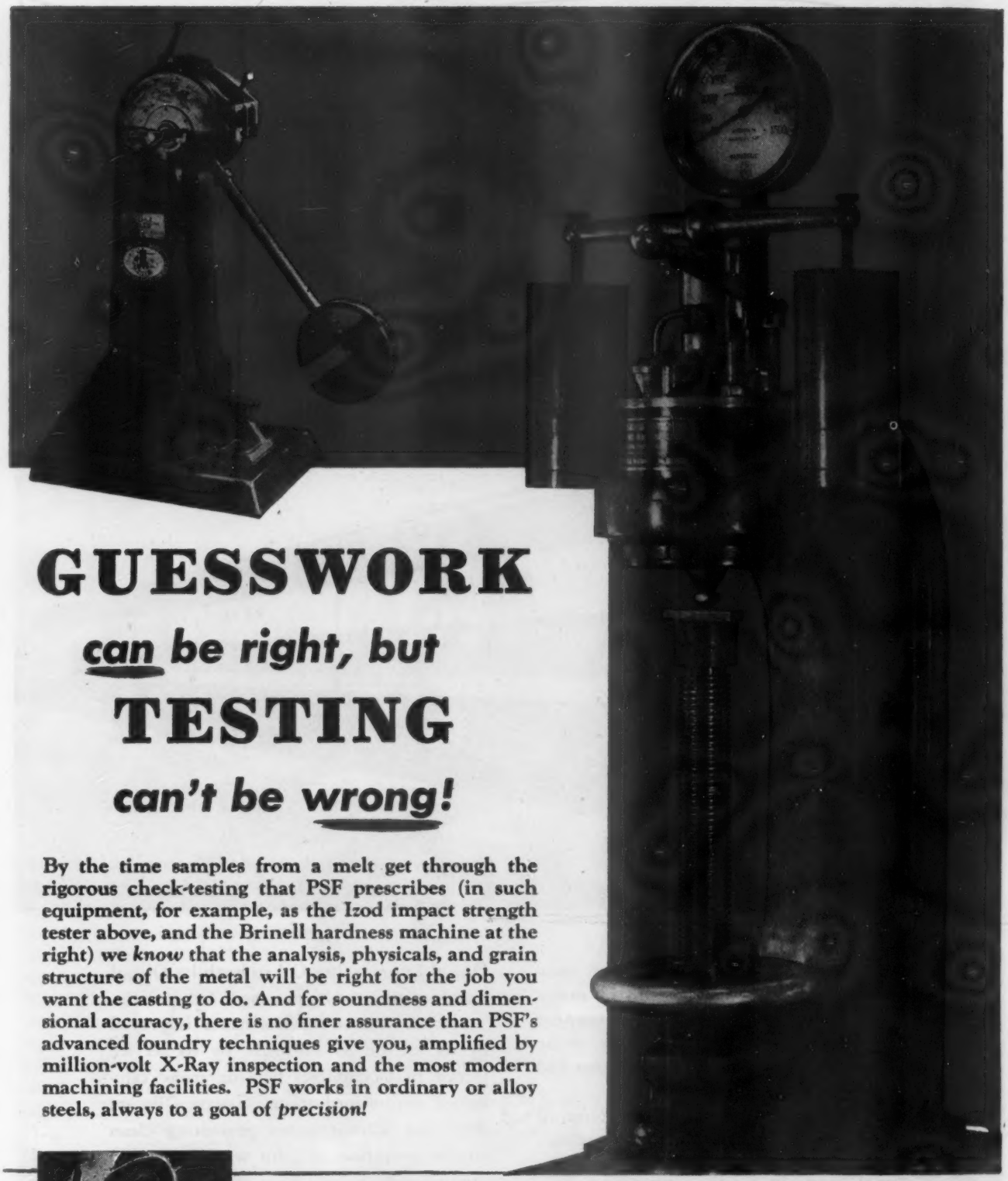
To keep this large fleet of Diesels operating efficiently and with high availability, proper lubrication is very essential. Atlantic Coast Line uses SINCLAIR GASCON GL-CC Diesel Lubricating Oil in both its Diesel freight giants and its passenger locomotives.

Sinclair Gascon's performance is proved by its use on 35 railroads, by its service record in locomotives hauling many celebrated streamlined trains. Gascon Oils are noted for solvent action promoting clean engine operation . . . for wear-prevention qualities which keep costs of parts replacement very low.

For top efficiency use SINCLAIR GASCON in your Diesels.

SINCLAIR RAILROAD LUBRICANTS

SINCLAIR REFINING COMPANY, RAILWAY SALES, NEW YORK • CHICAGO • SAINT LOUIS • HOUSTON



GUESSWORK

can be right, but

TESTING

can't be wrong!

By the time samples from a melt get through the rigorous check-testing that PSF prescribes (in such equipment, for example, as the Izod impact strength tester above, and the Brinell hardness machine at the right) we *know* that the analysis, physicals, and grain structure of the metal will be right for the job you want the casting to do. And for soundness and dimensional accuracy, there is no finer assurance than PSF's advanced foundry techniques give you, amplified by million-volt X-Ray inspection and the most modern machining facilities. PSF works in ordinary or alloy steels, always to a goal of *precision!*

W&D 9489

46 YEARS OF STEEL CASTING KNOWLEDGE

Pittsburgh

STEEL FOUNDRY CORPORATION

GLASSPORT, PA.

Sales Offices: NEW YORK • PHILADELPHIA • WASHINGTON AND CHICAGO

Great Travelers of Yesterday

JONAH (A long, long time ago)

Had TIME been published 'way back in the parable days, these are the words with which Jonah might have described his whale-belly wanderings through the Mediterranean to the goggle-eyed gentry of Nineveh at his journey's end.

For Jonah would almost surely have been a faithful reader of TIME, as most travelers are today.

GREAT TRAVELERS OF TODAY

TIME readers travel a lot more than most Americans and can afford to travel a lot *better*. If you could see how they live at home, you would know what they demand *away* from home—whether traveling by land, by sea, by air.

Surveys show, for example, that half of TIME's family heads have travelled by plane—have flown more than two and a half billion miles already.

TIME is the magazine that Pullman car passengers, pre-war cruise passengers, people who stop at the best hotels, read and prefer. TIME has been overwhelmingly voted the favorite magazine of top travel agents—the men who arrange America's jaunts and journeys.

That is why TIME has been the leader in Travel, Resort, and Hotel advertising for nine consecutive years (except for one year when it was second). And TIME will be the leader in the postwar years—for TIME is tops with Americans who are going places.

THE WAY TO REACH AMERICA'S MOST TRAVELED MILLION

NO WELDS • NO RIVETS NO LOCK JOINTS

There are no welds to break loose, no rivets to rust out and no ends to become unfastened and so cause trainmen to trip or slip on freight cars equipped with Morton "Open Grip" Safety Tread.

MORTON "OPEN GRIP"

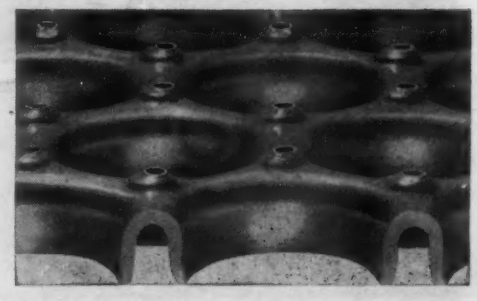
SAFETY TREAD FOR SAFER FOOTING

Maximum anti-slip protection is a built-in feature by use of the famous Morton Kass perforated buttons—so arranged that in any area and in any direction the foot is in a firm and slip-proof contact with an ample number of buttons at any time. It's self-clearing because scientifically placed open areas leave no flat surfaces for the accumulation of snow, ice, oil or water. This construction promotes speedy and complete drainage under all conditions.

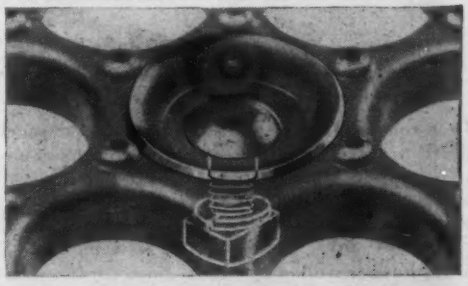
ONE-PIECE CONSTRUCTION

Each section of Morton "Open Grip" Safety Tread is formed from a single sheet of steel that requires no welds, no rivets and no trick lock joints. Because of its simplicity of production and installation, it is most economical to use. Its maintenance expense is nil.

Write today for complete facts. Morton "Open Grip" Safety Tread meets all requirements as specified in letter circular No. D.V.-1054 of the A.A.R. Deliveries are now on a reasonably prompt basis.



Cut-away view above shows the added strength that results from the deep-drawn flanges around every drainage opening.



Easy, quick installation is achieved through this special device which fits any of the open areas of the tread. Rotating, elongated bolt slot compensates for ordinary variations in saddle punching.

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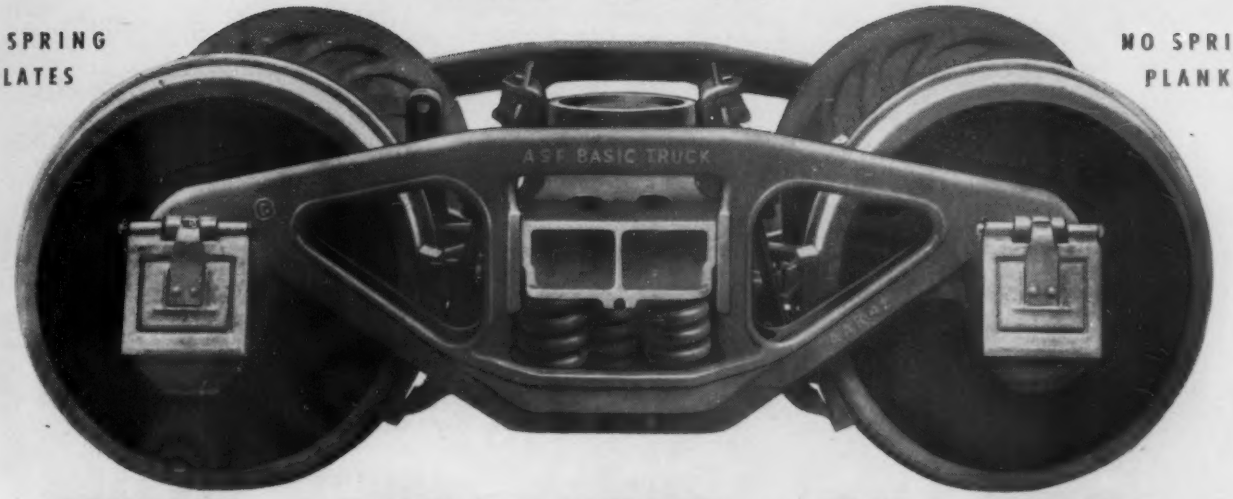
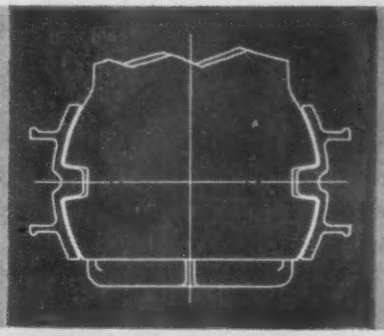
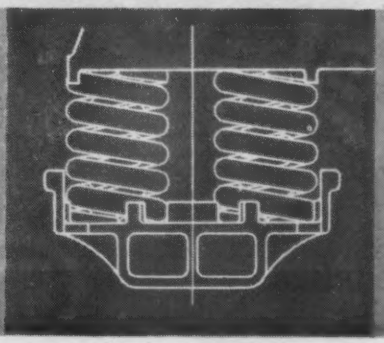


BASIC

FREIGHT-CAR TRUCK



Here is a rugged truck of simple design that combines all the essentials of a smooth, stable freight-car ride with the low-maintenance and safety benefits of simple construction. The A. S. F. Basic Freight-Car Truck is held together by rugged tongues on the side frame columns that mesh with grooves in the bolster. Curved surfaces between side frame columns and bolster minimize column wear, eliminate binding, and provide generous contact areas that assure dependable operation.



Simple construction is evident in the flanged spring seat that is an integral part of the side frame. Every side frame and bolster meets all A. A. R. strength requirements, of course. And for greater utility, for the interchangeability that means so much especially on interchange service, the Basic Truck can be used with either all-coil spring groups or combination snubber-coil spring groups. The Basic Truck is a safe, easy-riding freight-car truck.

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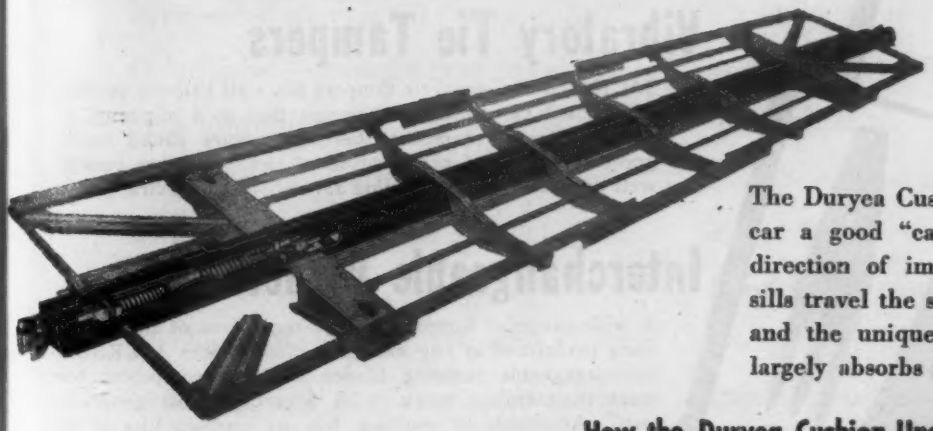
The glove's padding wouldn't be protection enough to prevent injury if he made the catch inexpertly. But the moment the ball strikes, his hand moves back with the direction of the impact, thus absorbing the force of the blow.

MOVEMENT CUSHIONS THE SHOCK! The same principle, in the Duryea Cushion Underframe, gives you SHOCKPROOF SHIPPING



The Duryea Cushion Underframe makes a freight car a good "catcher". Moving freely with the direction of impact, the Duryea floating center sills travel the shock the entire length of the car, and the unique arrangement of cushion springs largely absorbs its force.

How the Duryea Cushion Underframe Contributes to Victory

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PERMITS higher handling speeds.

ELIMINATES gear replacements maintaining efficiency for life of car.

SAVES TIME loading and unloading. Needs less packing and bracing.

SAVES MONEY usually spent for maintenance on every part of car.

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CUTS SLACK to pre-determined ideal.

COSTS NO MORE than conventional type, for average Duryea gear.

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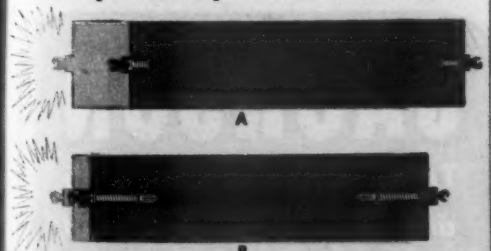
Here's what actually happens

. . . when two stationary freight cars receive the same impact, equivalent to a 50-ton car, loaded to capacity, coupling at a speed of 4 m.p.h.: CONVENTIONAL



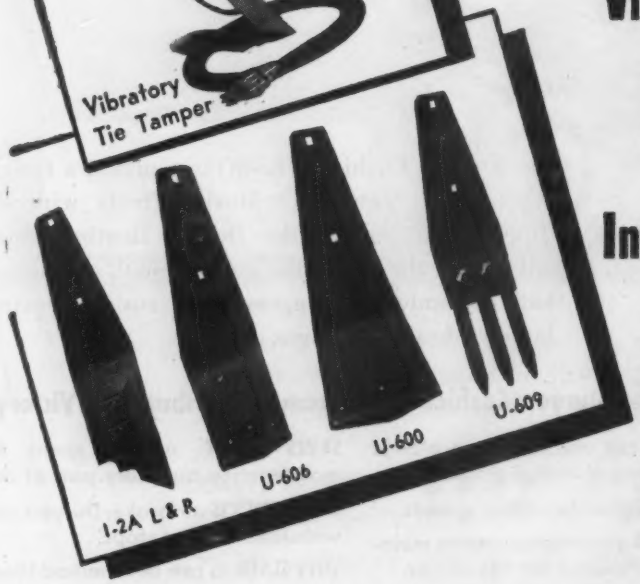
CAR (A): Draft gear "goes solid," car receives almost entire impact.
DURYEA CAR (B): Shock absorbed by cushion gears, car and lading are comparatively undisturbed.

DURYEA *Cushion* UNDERFRAME

FOR FREIGHT CARS

The Modern Safeguard For Shockproof Shipping

for 1945 Commitments



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Portable Power Plants

WS-4 is the standard 4-tamper unit with ample power to operate four JACKSON tampers. Makes an ideal 2-tamper outfit for spotting with small gangs. For B & B men this is a rugged, trouble-free, dependable power plant for floodlights and numerous tools and equipment . . . The WS-8 is a 4 or 8-tamper unit capable of withstanding peak loads under continuous and severe conditions.

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For 25 years JACKSON maintenance equipment has been a profitable investment for American, Canadian and Mexican railroads. Procurement officials faced with the tremendous job of rehabilitating their railroads following the gruelling grind of war, will do well to check the advantages of JACKSON'S modern, rugged and economical maintenance equipment . . . Here is wide-range, time-tested, dependable track servicing equipment that you can not afford to overlook when making your 1945 Commitments. Write for complete details.

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are efficient in any lifts and all ballasts

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No untried youngster, this alloy. Alcoa's research and development divisions have spent years in testing the performance of experimental quantities. In the fall of 1943, the first commercial run was put through Alcoa mills, and production has continued at an ever-increasing pace. Already, at least eight major aircraft companies are building new experimental planes in which 75S is the principal structural material.

75S is now a standard alloy for alclad sheet and extruded shapes. Plain sheet, plate, rolled rod and bar made from 75S continue on an experimental basis, but may be obtained for certain projects.

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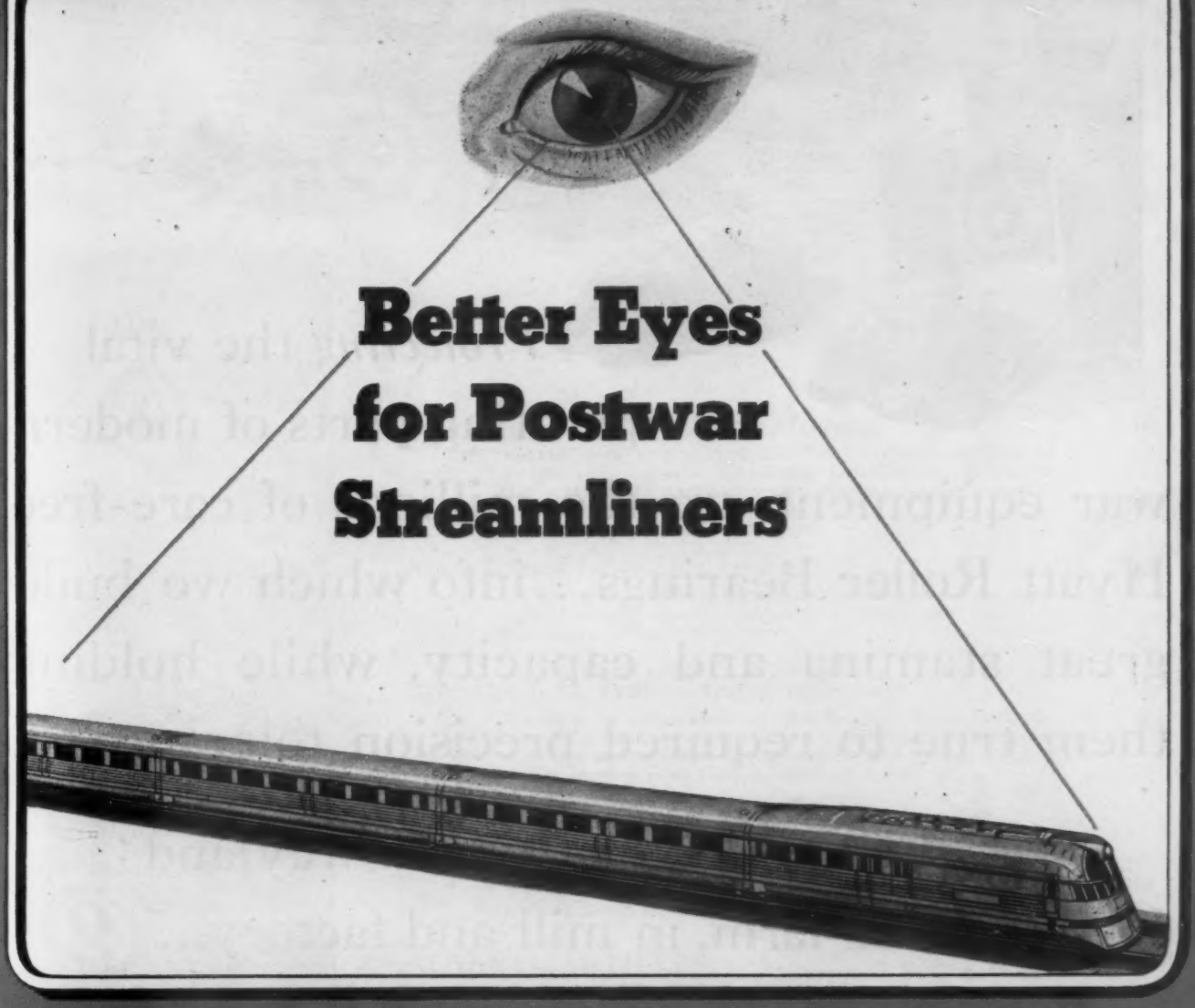

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Edwards is ready to supply new and better "eyes" for postwar streamliners, developed from years of experience in building transportation sash.

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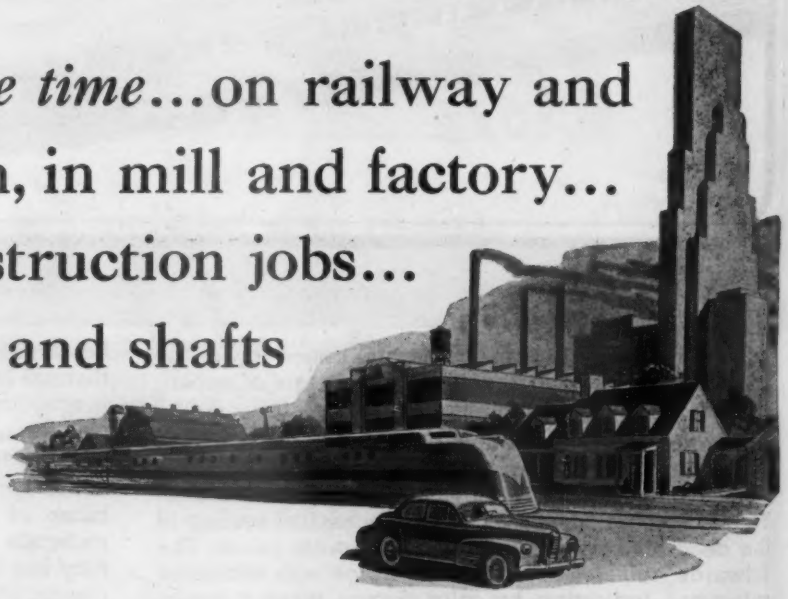

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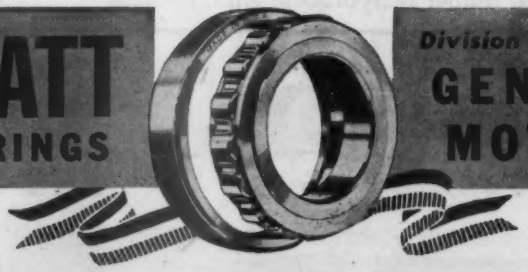

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Railway Age

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A "Clear" Cab Signal...

...means authorized speed with safety!

IN modern railway signaling, the track circuit is the only safe and reliable medium through which a train may automatically and continuously control the signals provided for its protection. Furthermore, the track circuit functions to detect a broken rail, "fouling" of the track, an open switch or other hazards that affect the safety of train operation.

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The Week at a Glance

RAILROADS ARE BIDDLED: Attorney General Biddle, hero of the Battle of Montgomery Ward, has deployed his forces and begun his highly-publicized onslaught on the railroad industry—which, of course, has nothing whatever to do but defend itself again the Justice Department's assignment to make political capital for the New Deal in a region where the fellow-travelers stand badly in need of votes. The "anti-trust" suit against the railroads, instituted at Lincoln, Nebr., is reported on page 340 herein. Among the industry's alleged misdemeanors are the establishment by collusion of high rates in Western territory, conspiracy to retard technological development, delay to shipments of perishables, refusal to accede to requests of bureaucrats that rates be reduced, conspiracy with pipelines and truck operators to augment the rates of these carriers, and legislative efforts to retard long-haul trucking. The sin attributed to Kuhn, Loeb & Co. and J. P. Morgan & Co., included among the defendants, is that they get too much business. Well, let's call off the war, boys, and get down to the really important business of keepng Mr. Berge, Mr. Biddle, and other New Dealers in office for another four years.

●

FLETCHER REFUTES: The A. A. R.'s Vice-President R. V. Fletcher used his appearance, last week, before the so-called "Kilgore Committee" of the Senate as an occasion to present a refutation of the charges made against the railroads in the preceding week by the New Deal's Prosecutor Berge in his Kansas City speech —which allegations have now become the basis of the Justice Department's "anti-trust" suit against the railroads. His examination of the principal points of the Berge onslaught are reviewed on page 338 herein—as is also his statement indicative of the magnitude of the carriers' research activities.

●

TRAFFIC FLATTENS OUT: Ton-miles of revenue freight handled by the railroads in July were 63,750 billion, compared to 63,742 billion in July, 1943. You have to move five places to the right of the decimal to find any percentage increase. For the seven months, though, the total is still 4½ per cent above last year.

●

MAY RAILROADS COMPETE?: This question, seemingly, must be answered in the negative—in the light of Washington developments reported in the news pages and elsewhere in this issue. An I. C. C. examiner has recommended that all-commodity rates by the railroads from northern Atlantic Coast points to Chattanooga and Birmingham be struck down as likely to offer some competition to coastwise vessels. The railroads have to be there to handle the business when the boats are otherwise engaged, but they dare not bid for such traffic when the boats want it because, argues the I. C. C. examiner, it is the policy of Congress to sustain a "strong, adequate, and efficient merchant marine." The Biddle suit against the railroads includes among the carriers' alleged sins a charge that they have sought legislatively to prevent long-haul truck operators from gaining or retaining undue advantages in the use of the public highways—while no action has been instituted to restrain these operators from seeking such advantages. The logic, such as it is, of the position of these government officials is that the railroads must remain passively relaxed to all the onslaughts of competition —but, nevertheless, they must contrive also (by what means, it is not stated) to be physically and financially strong so they can take over all the traffic of these competitors whenever the latter find it more profitable or otherwise desirable to divert their efforts elsewhere.

●

PAY TOO MUCH FOR FUEL: The railroads pay more for their coal than they ought to—in the opinion of an I. C. C. economist whose report on the subject is reviewed in our news pages. The carriers suffer under a differential price—higher than that paid by industrial users of coal —resulting from their "reciprocal buying" practices, according to this report. The railroads are also accused of "lagging behind" other industries in the development of specifications for the fuel they buy. Despite these critical observations, the report indicates that fuel outlays by the railroads were 8.4 per cent of operationg expenses in 1942, as compared to 14 per cent in 1917. Bituminous coal comprised 77 per cent of railroad fuel in 1942, compared to 92 per cent in 1899.

●

CAPITAL FROM EARNINGS: From 1912 to 1932, investment in railroad property increased $9.8 billion, but railroad capitalization rose less than $2.2 billion. Production by the railroads of ton-miles and passenger-miles was almost three times as great in 1942 as in 1912—a performance obviously impossible except for large additions to capital. The leading editorial herein cites these and other significant figures from the "Railroads in This Century" booklet issued by the A. A. R.'s Committee for the Study of Transportation—indicating therefrom the great strengthening in the carriers' capital structure which has occurred during the past three decades. It raises the question as to what earnings the railroads will be allowed in the post-war years, so that they may continue to strengthen themselves physically and financially to the public advantage.

●

ROCK ISLAND 4-8-4's: The Rock Island has got itself 10 more engines, which embody evolutionary development of the road's effective 5000 series of power, acquisition of which was begun in 1929. The new locomotives (described and illustrated elsewhere in these pages) are somewhat heavier than their predecessors; have larger drivers, fireboxes, and tenders; operate at higher steam pressure. This series of locomotives is the Rock Island's principal reliance for freight power on its heavy-traffic lines from Chicago to the Southwest, and between Council Bluffs and Colorado.

THE "NEED" FOR TRANSPORT: It is certainly no novelty any more to read in one's local paper where some business group is proclaiming that the community "needs" more super-highways, that traffic on the local river "needs" deeper channels, or that the area "needs" a super-duper airport. The existence of such "needs" is assumed to justify a "demand" on Congress or the state legislature or the city council that such "needs" be met by an expenditure of taxpayers' money. An editorial in this issue deals with the economic degeneracy involved in giving such political expression to economic wants. When America's business men did their thinking in terms of self-reliance instead of doles, they didn't go running to politicians with their "needs"—but dug down into their jeans for what they wanted. The editorial suggests further that there must continue to be an inadequate degree of railroad improvement and modernization, so long as such betterments are privately financed—while rival transportation plant has no limit on its expansion so long as the voters acquiesce.

●

THRIFTY MODERNISM: Station facilities, readjusted to the shifts in physical requirements which have come as other forms of city transport have overcome the dominance of the trolley car, do not (happily) in most cases require the junking of the old "deepo." If the structure is sound and embraces enough space—quite likely a little engineering skill in the rearrangement of facilities to meet the changes in the flow and dynamic of the crowd, plus the application of the somewhat nudely metallic decor which the public now associates with its concept of progress, will turn the trick. A specific and striking instance of this hearteningly thrifty device to meet what, in many places, is a painful want is afforded by the modernization job on St. Louis' union station, described in this issue.

●

WANTED—AN AIR POLICY: West Virginia's Congressman Randolph has introduced a resolution calling for an appointment of a joint commission to provide the nation with a consistent policy embracing all phases of aviation development —to replace the present wide variety of particularistic efforts, each primarily concerned with some special segment of the whole. In his laudable effort thus to circumvent the evils of particularism, Mr. Randolph seemingly has not considered the fact that all of aviation is itself only a segment of the whole of transportation—the health of all of which is the real locus of the public interest. If aviation is particularistically developed, regardless of the public interest in maintaining other equally-vital transportation services, the national interest will not be served. The Randolph proposal does not involve just another "study board"—whose findings would be morally binding on no one. Rather, the proposed "commission" would give direct representation to both legislative and executive branches of the government and to various segments of the public, placing each under some obligation to subscribe to the findings.

200 More Over Hump in eight hours

SINCE December, 1942, the Burlington has used 1000 Hp. Diesel switchers in its two hump classification yards at Galesburg, Ill., which have facilities for handling 10,000 cars every 24 hours. The high available tractive effort and flexibility enable the Diesels to hump up to 200 more cars in eight hours than is generally experienced with other types of power. Between January 1, 1943, and January 31, 1944, C.B. & Q. 1000 Hp. Diesel switchers Nos. 9216 and 9218 built by Electro-Motive Division of General Motors were assigned to this service — worked a combined total of 17,577 hours with an average availability of 97.5 percent — *100 percent availability was recorded for seven and eight months respectively.*

★ **BACK THE INVASIONS — BUY MORE WAR BONDS** ★

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS CORPORATION — LA GRANGE, ILLINOIS, U.S.A.

RAILWAY AGE

"Railroads in this Century"

"Railroads in this Century" is the title of a brochure presenting statistically a history of United States railways beginning with 1900, which has been published by the Railroad Committee for the Study of Transportation of the Association of American Railroads. Few persons like to study statistics, but they are the only form in which the development and activities of a great industry such as the railroads can be accurately surveyed, and the data in this brochure, much of which are revisions, in the interest of clarity, of data previously published elsewhere, will repay study by all who desire to inform themselves regarding past, present and prospective trends in the industry.

Railroad Investment and Capitalization, 1912 to 1942

	Investment in Road and Equipment (millions)	Net Capitalization (millions)
1912	$16,005	$15,126
1922	20,580	17,280
10-year increase	$4,575	$2,154
1932	26,087	18,894
10-year increase	5,507	1,614
20-year increase	10,082	3,768
1942	25,838	17,315
10-year *decrease*	249	1,579
30-year increase	9,833	2,189

Measured by ton-miles and passenger-miles, the railways rendered almost three times as much freight and passenger service in 1942 as thirty years before in 1912. To render this greatly increased service, they had to make a large investment in expanding their facilities—as well as greatly to increase their operating efficiency. They used to be constantly criticized upon the ground that they were "over-capitalized"—i.e., had increased their capitalization much more than their investment. As this ancient charge recently has been revived by Vice-President Wallace and Assistant Attorney Berge in widely-heralded public addresses, the last thirty years' record of increases in investment in road and equipment and in net capitalization (par value of securities actually outstanding in the hands of the public), as taken from reports of the Interstate Commerce Commission and given in the A. A. R.'s brochure, is highly significant.

The figures for 1912, 1922, 1932 and 1942 are presented in an accompanying table. They show that in 1912 investment was $16 billion and net capitalization $15 billion. In the decade ending with 1922 investment increased $4½ billion and net capitalization $2 billion. In the decade ending with 1932 investment increased $5½ billion and net capitalization only a little more than $1½ billion. Thus in twenty years investment increased $10 billion—from $16 billion to $26 billion—while net capitalization increased only $3¾ billion—from $15 billion to less than $19 billion. In the decade ending with 1942 investment *decreased* $249 million—because more equipment and other property was retired than acquired—while net capitalization *decreased* $1½ billion. The net results of thirty years' changes (1912 compared with 1942) were an increase in investment of $9 billion $833 million and an increase in net capitalization of only $2 billion $189 million. Investment exceeded net capitalization in 1912 by $1 billion or 5.8 per cent;

investment exceeded net capitalization in 1942 by $8½ billion, or almost 50 per cent.

This record demonstrates conclusively that for thirty years the railways have been financed with extreme conservatism. The increase in their investment which has enabled them to cope with the enormously increased freight and passenger traffic of World War II was made, as the facts given indicate, only in small part with capital derived from the sale of securities, and by a large preponderance with *earnings* made before the depression which actually belonged to their stockholders and could have been paid out in dividends.

In the period following the last war the railways needed to make, and did make, large expenditures and investment for the rehabilitation, expansion and improvement of their properties. Their needs of the same kind will be larger following the present war because they will have passed through at least a decade and a half of restricted development due to both depression and war.

Affording the railways opportunity to make the net earnings and expenditures they will need to make would be one of the most important possible contributions to post-war prosperity and employment.

How Determine "Need" for Transportation Improvements?

For a quarter of a century the transportation plant of this country has been expanded to meet "needs" which have, in increasing degree, been expressed politically rather than economically. A "need" for transportation—like a need for anything else—is given economic expression only when customers with money in their pockets show a desire to pay for enlarged and improved services, and thus motivate private capitalists, in their quest for profits, to provide the necessary facilities.

A "need" expressed politically doesn't require any money in the customer's pocket—or, anyhow, very little; such a "need" is expressed, not by money, but by votes. All the enormous expansion of inland waterways which has occurred since World War I has come entirely in response to a "need" expressed politically and not economically.

Those who have "demanded" this expansion have not put up any of their own money or offered inducements for other owners of private capital to pay for inland waterways they have said they "needed." All they have put up has been their votes for expenditures of the taxpayers' money.

The "need" and "demand" for highways has also been expressed politically to a far larger degree than economically. It is true that users of the highways, by excise fees on gasoline and payment for license tags, do in considerable measure defray the outlays upon highways. But there is little or no connection between the payments exacted from specific highway users and the kind of highways provided for them or the cost of their use of the highways. The farmer in his jallopy or small truck—because of the greater gasoline consumption on the relatively inferior roads provided in outlying areas—actually pays more heavily for his ton-mileage on the highways than do the great interurban trucks which whisk along on the easy grades of super-highways, some stretches of which have cost upwards of $1,000,000 per mile to build.

Even if payments from highway users as a whole, collected as at present in gasoline excises and license fees, were increased to equal the aggregate cost of highways, the characteristic of political rather than economic control of capital expenditures will still persist as long as especially expensive installations (e.g., viaducts and super-highways) are financed by exactions from all highway users rather than from the particular traffic which "demands" such costly facilities.

The so-called report on "Toll Roads and Free Roads" by the Public Roads Administration, which is the principal basis for current planning of post-war highway construction, while recommending the building of of a system of inter-regional super-highways, nevertheless contends that tolls collected from prospective users of such roads would not defray their costs. Which means, in plain English, that there exists a political "need" for such highways, but little or no economic demand or need for them.

The proposal is now being actively advanced that airports be similarly constructed with political "need" rather than economic demand (as expressed by potential paying customers) to determine the location and the magnitude of the expenditures to be made. Instead of trusting to profit-seeking private capital to locate and build airport facilities wherever the prospects are that there would be sufficient paying users of them to make the investment profitable, it is proposed to depend on bureaucratic wisdom to locate the airports and determine the amount to be invested in each. This approach to airport development was advocated with great clarity in an address by Assistant Secretary of Commerce Burden, reviewed in the *Railway Age* of July 29, page 212, and approved in principle in the recent referendum by the Chamber of Commerce of the United States and also reported in our July 29 issue.

The railroads—and the civilian and military traffic men who realize their utter dependence upon adequate and modern railway transportation service—may well ponder the significance to them of this ascendency of political over economic demand as the effective means by which has been secured practically all of the net increase which has occurred in the nation's transportation plant in the past fifteen years. *If a user of transportation feels a "need" for improved service, why*

should he any longer express this "need" economically with his own money, when he can, instead, give the same "need" political expression, and get his improvements at somebody else's expense? Such is the plain invitation in the present national policy toward transportation.

Can railroad service be kept up-to-date and adequate to the needs of military and civilian shippers who *must* have such service, so long as the railroads are the only means of transportation upon which there occur no capital expenditures motivated by politics and charged in part or in whole to those who do not need or demand such improvements?

Modern Steam Power Is Built Around the Boiler

Many times, in these columns, attention has been directed to the characteristics of modern steam power that have made units built within the past 10 years so valuable in the handling of the tremendously increased volume of traffic brought about by the war. Of all improvements in locomotive design and accessories, such as roller bearings, cast beds, boosters, feedwater heaters and mechanical lubrication, none is of greater importance than the changes that have contributed to increased boiler capacity. Years ago, when two-wheel trailer trucks placed a limit on the size of boilers and fireboxes a locomotive was designed to do a specific job and not expected to be used beyond the limit of that requirement. Helper service had not yet gone out of style in railroading.

In the description of the new 4-8-4 locomotives for the Rock Island, which appears elsewhere in this issue, the table of comparative characteristics of three groups of locomotives built over a period of 15 years shows what the trend has been. In 1929 the Rock Island ordered its first 5000-class 4-8-4 locomotive—a unit having 66,700 lb. tractive force; 26-in. by 32-in. cylinders; 88.3 sq. ft. of grate area and 7,786 sq. ft. of combined heating surface. These locomotives were built with 69-in. wheels and equipped with tender having a water capacity of 15,000 gal. and a coal capacity of 20 tons.

The new locomotives have practically the same tractive force—67,000 lb.—with 270 lb. boiler pressure (20 lb. more than the original units); the same size cylinders and 74-in. drivers. The boilers, however, are a different matter. First the fireboxes are larger—12 in. greater length, providing an increase of 8 sq. ft. in grate area—and the combustion chambers are longer by 30 in. The length of the tubes is 18 in. less than in the original locomotives and the combined heating surface is 6,011 sq. ft. as compared with the 7,686 sq. ft. These changes are indicative of the increasing importance with which combustion conditions are regarded.

Aside from these changes in the design of the boiler, it is of interest to note that the original locomotives have since been equipped with larger capacity tenders and roller bearings throughout.

Here is concrete evidence of evolution in locomotive design. These are the type of locomotives that are hauling the heavy burden of wartime traffic. The combination of the characteristics which are listed above are those that enable modern power to haul heavier trains at higher speed; to average from 9,000 to 12,000 miles a month in freight service; to stay out of the shop for 24 months, or 250,000 miles, between shoppings for general repairs; to turn at terminals in an average time of two hours or less and to do all these things at no increase in cost per locomotive-mile.

A locomotive is said to be no better than its boiler and the performance of such units as these bears testimony to that truth.

Maybe the Railroad Fellow Is Trading at the Wrong Store

50-Year-Old Station Made Modern

Rehabilitation of interior of St. Louis' terminal brings it up-to-date and increases capacity without addition of any space and at relatively small cost*

COMPLETE modernization of the public facilities in the 50-year-old Union Station at St. Louis, Mo., has so altered and improved its appearance, increased its capacity and added to the comfort of patrons that it is difficult to realize that this structure is not newly designed but, actually, was built 50 years ago. Instead of the drab walls, dull floors, unattractive and uncomfortable seats, ineffective lighting, crowded waiting rooms, and generally gloomy appearance that had characterized this station for many years, the traveler now steps into rooms that are bright, cheerful, attractive and well-lighted; that are fitted with comfortable, inviting seats; and that, despite the unusually heavy movement of passengers through this important railway center, are uncrowded.

Standing as the principal gateway to a considerable area of the South and Southwest, St. Louis is the second most important railway center on the North American continent. Seventeen trunk railways enter the city over 23 separate lines, all of which operate passenger trains into and out of the city, and all but one of them use the facilities of the Union Station.

Gradually Became Outmoded

This station, which was completed in 1894, fronts for more than 700 ft. on Market street, and extends from Eighteenth to Twentieth street. Built during a period when the tempo of travel was more deliberate than now, and designed to handle a volume of passenger traffic well below that of today, the facilities for serving the public had gradually become outmoded. Furthermore, the situation suddenly became acute with the tremendous increase in passenger traffic that began shortly before our entrance into the war, with the result that the facilities also became inadequate, some of them grossly so, to perform the functions for which they were intended.

Situated outside the central business district of the city, with a larger percentage than usual of the arriving passengers remaining in the station awaiting connecting trains, it has always been necessary to provide more extensive restaurant, lunch counter, store, news stand, telegraph and telephone facilities for their accommodation than are commonly provided. These facilities occupy a relatively large area of the floor space on the track level.

One of the outstanding features of the original design was a train concourse 70 ft. wide, extending the full width of the 32-track trainshed. Some years ago, ten station tracks were added west of the trainshed, at which time the concourse was extended to the baggage room on Twentieth street, so that it is now 708 ft. 6 in. long. In recent years, this concourse has been known as the Mid-

The Grand Hall Is Now a Popular Waiting Room—U. S. O. Quarters Can Be Seen Through the Arches

way. Because of the large floor area, a considerable number of concessions were located in the Midway, where they were easily accessible to persons hurrying to and from trains. This location also released floor space in the none-too-commodious waiting room on this level.

The main entrance to the station is from Market street, on the north, by means of a wide stairway that leads to the track level and, by flanking stairways, to the Grand Hall on the floor above. Except for a few minor changes, principally to accommodate concessions, which did not affect the general arrangement, the lower floor had remained unaltered since the station was opened 50 years ago.

Approximately the west half of this floor was devoted to restaurant, taxi, baggage and other facilities. Beyond these facilities, but incorporated as an integral part of the station building, there is an 86-room hotel. The east half of the lower floor was occupied by a waiting room, the ticket office, an immigrant room and a number of concessions.

Originally, the Midway was separated from the train-

Looking Toward Former Ticket Office. New Ticket Counter at Right—Note Treatment of Columns and Lighting

* September 1 marks the fiftieth anniversary of the opening of the Union Station at St. Louis, Mo., which will be celebrated with appropriate ceremonies on that date.

shed by a high iron-picket fence, which was later covered with sheet metal to conserve heat. One of the first and most striking items in the modernization program was to replace this unsightly fence with an attractive wall of gypsum tile, into which were inserted large plate-glass panels extending to the height of the doors, giving a clear view of the trainshed. Sliding doors of rift oak with circular panels of plate glass, were also installed to give access to the train platforms.

As the next item in the program, all concessions were cleared from the areas they had occupied in the center of the Midway, to locations behind a line that was established 14 ft. south of the south exterior wall of the station. All of the furniture and fittings for these concessions are of rift oak, "streamlined" to correspond with the general motif of the modernization within the building. Despite its drab and depressing appearance, the old concrete floor in the Midway was in generally good condition, although worn places were leveled and several minor areas were repaired. The whole atmosphere of this area was brightened and enlivened by the installation of a terrazzo topping over the concrete floor, with dark arrows pointing to each of the doors leading to the train platforms.

"Dolling Up" the Midway

Another outstanding improvement was made in the lighting of the Midway. To illuminate this area, two double rows of 6-tube cold-cathode neon lights were installed behind ground-glass panels just below the roof trusses, in such a way as to provide continuous parallel lighting panels for the full length of the Midway. These lights, which can be controlled as to brilliance, produce a striking effect, which is in strong contrast with the ineffective lighting which they replaced. This area is heated by means of revolving unit heaters suspended from the roof trusses, with live steam from the central power plant, which is located along Eighteenth street south of the trainshed.

As an added convenience for departing passengers and of persons waiting for arriving trains, information facilities were moved to the Midway, and a new train-information booth and operating telegraph office was constructed of hollow tile in the wall between the Midway and the trainshed. This booth is provided with a counter over which oral information is imparted, and with a megaphone connected to a public address system serving the Midway, waiting rooms and the Grand Hall and with a train board which shows up-to-the-minute information, by train name as well as number, concerning the time and track assignments of the 85 inbound and the 86 outbound scheduled trains that arrive and depart each day. Information regarding the movement of these trains is sent to the telegraph office, from which it is relayed to the attendants in the booth.

Grand Hall Is Modernized

A new room 35 ft., 3 in. by 65 ft., 10 in. was built over the 18th street stairway to house the telephone information and Pullman reservation service with materially improved service to the traveling public. This room is treated acoustically and ventilated mechanically, has a lighting system similar to that in the Midway, and is provided with toilets and lockers.

As an added service to patrons who have a limited time to wait for their trains and for those waiting for arriving trains, who throng the Midway at all hours, comfortable station seats of rift oak were installed the full length of this concourse. There are, however, several interruptions to the uniform spacing of these seats to provide wider intervals at points of maximum lateral travel.

When the station was placed in service originally, it was intended that the Grand Hall on the upper floor should be the main waiting room, and it was fitted for this purpose with what was then the most up-to-date station seating. To the east of this room, but reached through a corridor, there was a large women's waiting room, with a commodious retiring room, and a separate toilet which included a wash room and two baths. In the center of the Grand Hall were two open wells to the lower floor. However, the accommodations on this floor were never popular and over the whole period from the opening of the station they had been little used.

In the modernization of this floor, the open wells were closed and the entire Grand Hall floor covered with terrazzo floor having a brown border. The walls and arched ceiling were cleaned and redecorated, but were not changed otherwise. Lamps of the floodlight type were inserted in the ceiling to give ample and well-distributed lighting over the entire floor area. This room was then furnished with units of upholstered seating, which can be moved and arranged as desired, and which were designed for both comfort and appearance. Writing

"Streamlined" Midway with Adequate Lighting, Attractive Surroundings and Clear Passages, Bears Little Resemblance to Old Concourse

desks were placed at the South windows. As a result of these changes, and in contrast with its former appearance, this room, which now possesses the atmosphere of a club lounge, is attractive and restful, and has become the most popular waiting area in the station.

Only minor changes were made in the women's room on this floor. These were the replacement of the old lighting fixtures with fluorescent lights to give a softer and more uniform lighting. However, the oak wainscot and trim were cleaned and refinished, and the plaster walls were painted an ivory tint. Upholstered furniture corresponding with that in the Grand Hall also replaced the old fixed station seats in this room.

In the corridor extending between the Grand Hall and this room, the floor was covered with Tile-Tex, a variegated asphalt floor tile, with brown predominating, laid in a diagonal pattern. This floor is surmounted with a dado course of Monowall, of corresponding brown, having the appearance of dark marble. Above this the hollow-tile partition wall is plastered to the molded-plaster ceiling border. Fluorescent lights were also installed in this passage.

South of the corridor and east of the Grand Hall, quarters were provided for the traveler's-aid organization, consisting of an office and a public room. In preparing the latter, an asphalt tile floor of alternate blocks of brown and black was laid, and a wainscot of Linowall, an asphalt product resembling grained wood, was applied to the walls. Above this, the plaster walls were cleaned and painted. Office furniture was supplied in keeping with the remainder of the furnishings on this floor.

West of the Grand Hall, the Pullman reservation and telephone information forces, the janitors and the porters were moved to new quarters and the space thus vacated was turned over to the U. S. O. The three existing walls were redecorated. A lunch counter was placed along the south wall, and racks for checking soldiers' baggage were erected in the corridor along the north side of the building. The floor was covered with inlaid linoleum, and oak writing desks, and oak chairs with leather seats and backs were provided for the soldiers using this accommodation. As in the other rooms on this floor, fluorescent lights were installed.

While the alterations and decorations that have been mentioned have converted somewhat gloomy and outmoded waiting rooms into attractive, comfortable quarters, with a snappy modern appearance that has reversed the attitude of the public with respect to their use—the changes involved no major changes in the original arrangement and only a few minor ones. In contrast, both the arrangement and the appearance of the facilities on the lower floor have been altered completely, as a result of which a surprisingly large amount of additional room has become available for the comfort and convenience of the patrons of the roads using this station.

Tickets Now Sold Over the Counter

Little improvement could be made on this floor without a complete rearrangement of the existing facilities, the most serious obstacle being the ticket office. This office, which had been planned for the rapid sale of tickets under the conditions of a half-century ago, was located about 50 ft. east of the Grand staircase, to one side of the principal lines of travel through the station. It was 78 ft. by 32 ft. in area and was provided with 36 ticket windows just prior to the World's Fair in 1903, only 6 of which faced the waiting room, the remainder being along a 16-ft. passage between the waiting room and the immigrant room. Patrons disliked to use the windows along the passage, and they have been partly closed for years. As a result, efforts to handle the ticket sales through the six windows facing the waiting room often resulted in much congestion on the patrons' side and slowed down sales quite definitely because of the amount of walking required of the sales staff in going to and from the standard ticket cases, of which each road had one or more.

It Was Sometimes Difficult to Buy Tickets Under the Former Arrangement

Accordingly, a new "streamlined" ticket office, designed for over-the-counter sales, horseshoe in shape, with counter space for 16 ticket sellers, was built on the south side of the waiting room opposite the Grand staircase. The ticket-selling facilities included a dual-purpose, two-story building 65 ft. long, extending to the 14-ft. concession line in the Midway, to house the cashier and agent and to provide ticket storage and lockers on the second floor. This building also includes room for long distance and local telephone pay services of the Southwestern Bell Telephone Company, which are accessible from both the waiting room and the Midway. To add to the "streamlined" effect of the ticket counter, a curtain wall, corresponding with the contour of the counter, was dropped from the ceiling of the waiting room and frescoed with an historic scene depicting the St. Louis river front, with the Eads bridge in the background.

Taking a cue from the inconvenient arrangement of the ticket cases in the old office, new cases were designed which have reduced travel between the counter and the cases to the minimum, and, despite the fact that every ticket seller sells tickets for each of the 16 roads using the station, none of them is now more than a few steps from the tickets he requires.

With the new ticket office in service, the old office was torn out and this space and the old immigrant room were utilized for waiting-room purposes, giving a total area 233 ft. long by an average width of about 50 ft. In the modernization program that followed, the west wall of the immigrant room was moved west about 20 ft., enlarging this room to 60 ft. by 75 ft. At the same time, the obsolete toilets east of this room were replaced with modern fixtures and furnishings, a new men's pay toilet was constructed in the sub-basement and a rest and powder room for women provided.

Centrally-located double-swinging doors connect the east waiting room with the main waiting room. The floor has been relaid with Tile-Tex, an asphalt floor tile, in square pattern laid diagonally with the blocks in three tones of brown. The east, north and south walls

of this room remain unchanged, but they were cleaned and painted with light paint to transform the former gloomy appearance to one of cheerfulness. As an added service to patrons of the station, a new lunch counter and a newly-equipped kitchen replace the old immigrant-quarters lunch room. The counter is of re-conditioned marble and the station seats, which provide room for 108 persons, are rift-oak, in keeping with the remainder of the finish on this floor. To heighten the "streamlined" effect, fluorescent lamps give a soft and uniformly-distributed light.

Main Waiting Room Gets Face Lifted

It was in the main waiting room, however, that the greatest change in appearance and convenience took place, in which an exceedingly unattractive and depressing room has been transposed into one that is bright and lively. With the old ticket office out of the way and with the east waiting room enclosed, an area of approximately 170 ft. by 50 ft. became available, and this section of the station was modernized effectively from floor to ceiling. As the plan was carried out, the ticket counter, furnishings and concessions fit into a harmonious whole, with none arousing any sense of obtrusiveness.

One of the problems connected with the preparation of the plans was the treatment of three lines of cast-iron columns, which were spaced 24 ft. longitudinally and 20 ft. transversely. At some time they had been built out with plaster to increase their diameters, more nearly proportioning them to the size of the room. As they stood, however, they could not be made to fit into any acceptable scheme, and they could not be removed because they carry all floors above. The problem was solved by enclosing them with plain-surfaced rift-oak covers, to give them the appearance of enlarged square columns, and the manner in which they now fit into the decorative scheme is little less than astonishing to one who was familiar with their former appearance.

The floor in this area was resurfaced to permit application of Tile-Tex flooring corresponding with that in the east waiting room and in the lobby and travelers' aid on the floor above. The wainscot of dark-green glazed brick, which had been a feature of this room for 50 years, was left in place, but was covered with marbleized Monowall, similar to that in the corridor on the floor above. Above this, the walls were finished with gypsum acoustical tile.

From the line of the old ticket office, the original beamed ceiling was retained, except over one bay on each side of the new ticket counter, where the ceiling was dropped to the lower side of the beams and was given special decorative treatment. However, the same acoustical tile was applied over the ceiling area of this room from the east waiting room to the west line of the old ticket office, that was used on the walls. As was done in all other areas included in the modernization program, fluorescent lighting was installed in this room, the lamps being inserted behind frosted-glass panels, which were set flush with the ceiling to give maximum dispersion and softness. Oak seats duplicating those in the Midway, were provided for this room.

A new counter, 35 ft. long, with 10-ft. returns on each end, was built against the west wall to serve Western Union. It is finished in oak to match the ticket counter.

In a further effort to promote the convenience of patrons, the small parcel room near the west end of the station, adjacent to the taxicab concourse, was built out to the 14-ft. concession line with a brick wall having a dressed-stone base and a brown glazed-tile belt course, corresponding with the main wall of the building. Two-story baggage racks were provided and a mezzanine floor over that portion projecting into the Midway. The office of the general baggage agent with the lost-and-found storage space, was moved from an "out of the way" location over the baggage room to the train-level floor, and with entrance directly from the Midway. With this improved facility in operation, the parcel room in the main waiting room was vacated and the passenger agents of the lines using the station were moved from the Midway into the space it had occupied.

Redecoration of the Grand staircase and the installation of a center rail on the flight down to the track level completed the work of modernization, except in the taxicab concourse. There a new sunken asphalt pavement was laid 8 in. below the concrete terrazzo-topped walks that were constructed on the east and west sides of this area. The concessionaire rehabilitated the restaurant to correspond with the modernization of the railway facilities. Counters and furniture were replaced and rearranged. Glass blocks were installed in the north or Market street wall, the ceiling was dropped and the ceiling and walls were given acoustical treatment.

Taken all in all, this station is an outstanding example of the improvement in the way of modernization that can be accomplished at relatively small cost, without altering the fundamental character of the building or adding to it, and with a few changes in walls and partitions and the installation of modern station furniture, capacity of the station has been increased manyfold.

This project was executed under the general direction of Philip J. Watson, Jr., president, Terminal Railroad Association of St. Louis. The plans were prepared and the work was done under the direction of H. Austill, chief engineer.

* * *

Photo courtesy Canadian Pacific

C. P. R.'s Forecast in Postwar Design

The "Bear River," recently converted from a compartment-observation car to a diner with accommodations for 40, is now in service on the Canadian Pacific's subsidiary, the Dominion Atlantic Railway, handling heavy troop movements from camps on the line between Digby, N. S., and Halifax. Deemed a "piece of practical postwar planning," it is expected the car will be particularly suited for passenger traffic from the New England States, which will return, with peace, to the D. A. R., at Yarmouth, N. S. Two-tone French gray walls and indirect ceiling lights contribute to a freshness of interior.

Rock Island 4-8-4 Locomotives

Ten units, built by American Locomotive Company, bring total of this type on road to 75 — Tractive force, 67,000 lb. — Total engine weight, 467,000 lb.

DURING the first part of this year the Chicago, Rock Island & Pacific added ten 4-8-4 type combination freight and passenger locomotives to its motive power inventory. These most recent units bear the road numbers 5100 to 5109 bringing the total of the 5000 Class locomotives on the Rock Island to 75, all of which have been built by the American Locomotive Company. The first of this group, a single locomotive No. 5000, was built in 1929* and followed by 64 more built in 1929 and 1930. A comparison of the characteristics of the present order with previous locomotives of the same wheel arrangement is shown in an accompanying tabulation. All of these 5000 Class locomotives are used on long runs varying from 495 to 520 miles in the territory between Chicago and Kansas City, Kans., Kansas City and Dalhart, Tex., Council Bluffs, Iowa, and Limon, Colo.

The original 5000 Class locomotives purchased in 1929 and 1930 have since been equipped with roller bearings, 74-in. driving wheels and 20,000-gal. tenders which improvements have contributed to the ability of these locomotives to average as much as 8,700 miles a month.

The Boiler and Accessories

The boilers of these new locomotives are conical in type and are designed for a working pressure of 270 lb. The outside diameter of the first ring is 86⅝ in. and the first ring is 98 in. outside diameter. These locomotives are oil fired and have fireboxes 144 1/16 in. long by 96¼ in. wide giving an equivalent grate area of 96.3. The fireboxes are designed with three Nicholson syphons in the firebox which support the arch and one in the combustion chamber. The length of the combustion chamber is 84 in.

The oil-burner arrangement is designed with the controls on the left side of the cab and installed with the burner on the center line of the boiler at the front of the firebox. The oil heater is located in the draft pan at the left side. The firebox is designed to provide for the future application of a Standard BK stoker. Also flexible staybolts are used in the breaking zones of the firebox sides, in the combination chamber, throat sheet and backhead.

Welding is used extensively in the construction of these boilers. The junctions of the outside firebox and roof sheets are seal welded. The syphons are welded to the crown, throat and combustion chamber sheets and welding is used in numerous places in the construction and sealing of the firebox.

There are 199 2¼-in. tubes and 58 5½-in. flues with a length of 20 ft. over the tube sheets. The boilers are equipped with the Superheater Company's Type A superheater having 58 units with 1½-in. outside diameter superheater pipes. The net gas area through the tubes and flues is 9.9 sq. ft. The American multiple front-end throttle is installed in the header.

Water is fed to the boilers by one Nathan Type 4000 injector, together with a Worthington Type 6SA feedwater heater. Fire fighting connections are installed in the delivery line of the feedwater pump.

Other boiler accessories are the Electro-Chemical Foameter, Okadee blow-off cocks, Barco low water alarm and 3½-in. Ashton safety valves.

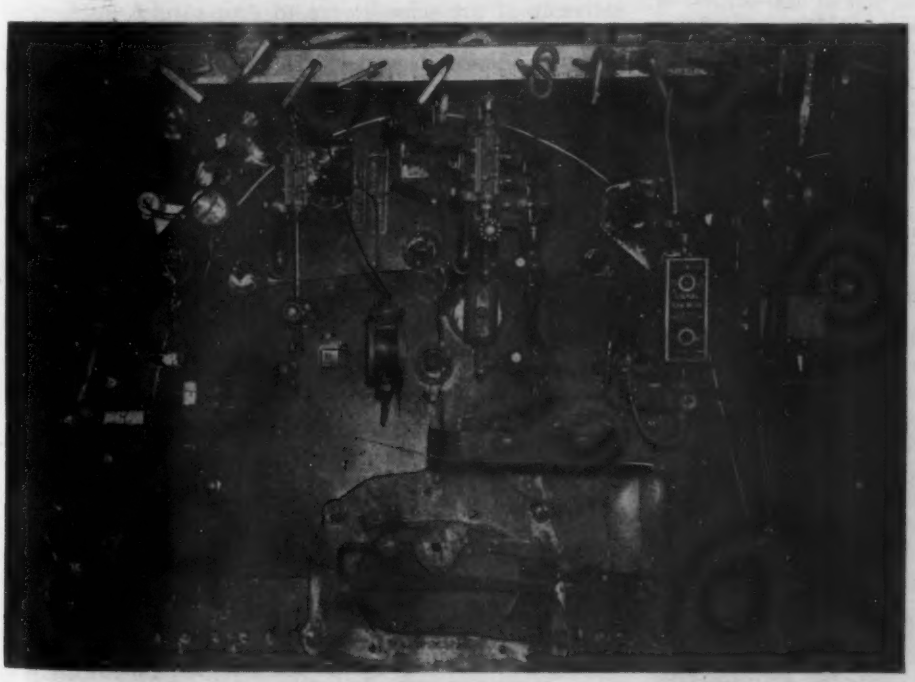
Comparative Characteristics of Rock Island 4-8-4 Type Locomotives

Road Nos.	5000-5024	5025-5064	5100-5109
Year built	1929-1930	1930	1944
Builder's order No.	S-1640 S-1655	S-1686	S-1920
Total weight of engine, lb.	434,000	436,000	467,000
Tender weight of tender (⅔ loaded), lb.	292,200	304,300	301,800
Total engine and tender wheel-base, ft.-in.	88—0	88—0	95—11
Boiler pressure, lb.	250	250	270
Driving wheel diameter, in.	69	69	74
Tractive force, engine, lb.	67,000	66,000	67,000
Tractive force, booster, lb.	13,100	13,100	...
Cylinder bore and stroke, in.	26 x 32	26 x 32	26 x 32
Firebox length, in.	132⅛	132⅛	144 1/16
Firebox width, in.	96⅛	96⅛	96⅛
Grate area, sq. ft.	88.3	88.3	96.3
Evaporative heating surface, sq. ft.	5,443	5,443	4,573
Superheating surface, sq. ft.	2,243	2,243	1,438
Tender water capacity, gals.	15,000	15,000	21,500
Tender fuel capacity	20 tons	20 tons	5,500 gal.

* Railway Age, December 7, 1929, page 1325.

General Dimensions and Weights of the Chicago, Rock Island & Pacific 4-8-4 Type Locomotives

Railroad	Chicago, Rock Island & Pacific
Builder	American Locomotive Company
Builder's order number	S-1920
Road class	R 67
Road numbers	5100—5109
Date built	1944
Service	Freight
Rated tractive force, engine, 85 per cent, lb.	67,000
Weights in working order, lb.:	280,000
On drivers	87,500
On front truck	
On trailing truck	99,500
Total engine	467,000
Tender (⅓ loaded)	301,800
Wheel bases, ft.-in.:	
Driving	19— 9
Engine, total	47— 1
Engine and tender, total	95—11
Driving wheels, diameter outside tires, in.	74
Cylinders, number, diameter and stroke, in.	(2) 26 x 32
Valve gear, type	Walschaerts
Valves, piston type, size, in.	12
Maximum travel, in.	7⅝
Boiler:	
Steam pressure, lb.	270
Diameter, first ring, inside, in.	84¼
Firebox length, in.	144 1/16
Firebox width, in.	96¼
Combustion chamber length, in.	84
Arch tubes, number and diameter, in.	None
Syphons, number	4
Tubes, number and diameter, in.	199—2¼
Flues, number and diameter, in.	58—5½
Length over tube sheets, ft.-in.	20—0
Fuel	Oil
Grate area, sq. ft.	96.2
Heating surfaces, sq. ft.:	
Firebox and comb. chamber	423
Arch tubes	None
Syphons	155
Firebox, total	578
Tubes and flues	3,995
Evaporative total	4,573
Superheating, Type A	1,438
Combined evaporative and superheat	6,011
Tender:	
Style	Rectangular
Water capacity, U. S. gal.	21,500
Fuel oil capacity, gal.	5,500
Trucks	Six-wheel



Foundation and Running Gear

These locomotives are built with a General Steel Castings Corporation's cast-steel foundation bed in which cylinders, back heads and cradle supports are cast integral.

The engine trucks are General Steel Castings Corporation's four-wheel type equipped with coil and elliptic springs. The trailer truck was also supplied by the General Steel Castings Corporation and is the four-wheel Delta type with the Timken lateral control device on the front axle. The wheel centers are the Boxpok type, 66 in. in diameter on which are mounted 74-in. open-hearth steel tires. Boxpok wheel centers, 38 in. in diameter are also used on the back trailer-truck wheels with 45-in. tires. All of the locomotive and tender axles are medium carbon steel and Timken roller bearings are used on all engine and tender axles. The driving axles are hollow bored. The Alco lateral-motion device is used on No. 1 driving wheel.

The cylinders are 26 in. bore by 32 in. stroke and are fitted with Hunt-Spiller gun iron bushings in both cylinders and valve chambers. The pistons are the forged Z type furnished by Carnegie-Illinois and fitted with Hunt-Spiller gun iron rings. The crossheads are the multiple bearing type tin lined and fitted with SAE 1065 carbon steel keys.

The piston valves are 12 in. in diameter with a maximum travel of 7⅝ in. The valve gear is the Walschaerts type with Multiroll needle roller bearings, controlled by an Alco Type G power reverse gear. The cut-off in full gear is 80 to 82 per cent.

The crankpins are medium carbon steel and all except the front pins are hollow bored. The side and main rods are medium carbon steel and where floating bushings are used Hunt-Spiller fixed bushings are used with bronze floating bushings.

In counterbalancing these locomotives, the wheels on axles Nos. 1, 3 and 4 are counterbalanced for a static overbalance of 147 lb., 145 lb. and 144 lb. respectively, without crossbalance considered. The main wheel, No. 2, is crossbalanced with an overbalance of 93 lb. on the right side and 146 lb. on the left side. The main wheels have a single counterbalance segment at an angle of 7 deg. 35 min. in advance of the centerline of the crank.

The total weight of reciprocating parts is 1,997 lb. per side of which 675 lb. or 34 per cent is balanced. The dynamic augment at diameter speed is 7,550 lb. at No. 1 wheel, 7,450 lb. at No. 3 and 7,400 lb. at No. 4. At the main wheel it is 4,780 lb. on the right side and 7,500 lb. on the left.

The spring rigging of these locomotives is the conventional type with equalization continuous from the front of the No. 1 wheel driving to the rear of the back trailer wheel. Coil springs are used at the ends of the system and ¼-in. Fabreeka pads are used on all truck and driving semi-elliptic springs.

Mechanical lubrication of cylinders, valves, guides, feedwater pump and throttle is furnished by a Nathan DV-7, 36-pint 14-feed mechanical lubricator on the right side and an identical lubricator on the left side supplying the valve-stem guides and crosshead, frame pedestal wedges, engine-truck center-pin guide and the radial buf-

(*Continued on page 337*)

How the I. C. Trains New Employees

Youths under draft age are schooled for yard and engine service, while young women are trained as operators and clerks

by Wayne A. Johnston,
Assistant Vice-President, Illinois Central

AT the beginning of 1943, it was decided that the Illinois Central at a central point would establish a school for training youths. Such a school was located at Carbondale, Ill., with the first class starting on April 5, 1943. We sent two rules examiners to Carbondale to open this school and assigned one conductor and one engineer to assist them. It was agreed, before the school was opened, that we would pay the living expenses of these young men, and we took over part of a hotel and arranged with a nearby restaurant to feed the boys while at school. Each session of the school lasts for ten days and every student is expected to attend one complete session of the school.

Prior to establishing this school at Carbondale, we visited with each division superintendent and his staff, explaining in detail the plan that we had in mind and the procedure to be followed. Our first step was for the division superintendents to call on all superintendents of schools in their territory, as well as the newspapers. In many instances members of the boards of education were also contacted. The purpose of these calls was to inform the public, and especially the school authorities, of our reason for encouraging young men 16 years of age to enter railroad service. We pointed out that these young men would be performing an essential bit of work during the emergency, and further, that their absence from school, during the war period, would not be any more serious to them than to the young men 18 years of age and older who were going into the armed forces. With only two exceptions, we received the hearty endorsement of the educational leaders, as well as the newspapers.

Division Officers' Plans

Arrangements were made for division officers to inform all of our employees of the arrangement, in order to obtain a large number of members of employees' families as students. We also endeavored to obtain additional recruits by encouraging the young men whom we did obtain to solicit their friends. Other mediums, such as newspaper advertisements and circular letters, were used. Our special agents called on city, county and state officers to obtain the names and addresses of a large number of young men 16 years of age. Calls were made on the families of these young men and our plan explained to the parents. Selective service boards were interviewed and asked to co-operate in sending to us any young men whom they might find unsuitable for military service. While this latter group, commonly classified 4-F, were older than the young men secured from other sources, their classification exempted them from military service and in many cases their physical defects were not such as to disqualify them for our service.

At the first school, 65 young men attended the opening session. This attendance continued, and, as it overcrowded our facilities, we established a second school at Memphis, Tenn., on June 16, 1943. Young men coming from points north of the Ohio river attended the school at Carbondale and those from south of the Ohio river attended the school at Memphis. As was the case at Carbondale, a conductor and an engineer were assigned to assist in the instruction. One of our rules examiners remained at Carbondale and the other was transferred to Memphis. We housed and fed the young men who attended the Memphis school in practically the same manner as those attending the Carbondale school.

Outline of Curriculum

A number of conferences were held prior to establishing the school at Carbondale and an outline was developed for the curriculum. We decided that a portion of each session would be held outdoors on the property, where the young men could see in action the operations taught in the classroom. The two primary reasons for the establishment of the school were to give careful instruction on the book of rules and to instill practices of safety in the mind of each young man. A representative of our safety organization attends each session at the school and devotes one day to safety instruction. The general and executive officers of the railroad visit the school from time to time to indicate to the boys the interest that the officers have in their welfare.

After the establishment of the schools at Carbondale and Memphis a situation developed on the Chicago Terminal which indicated the need for a school in Chicago to meet the need of the terminal organization alone, and, accordingly, a third school was established at Markham yard on August 19, 1943. The course of instruction is the same as that given at the other two schools. This school, like the other two, has been very successful. Some 2,500 young men have completed courses at the three schools and approximately 65 per cent of these young men are still in our service.

In all cases, those who have remained in our service have given a good account of themselves. We have had conferences at headquarters with the general chairmen of the running crafts for the purpose of soliciting their co-operation in the education of these young men. All of these general chairmen have lent their influence by talking in their lodges and with their men about the importance of helping to train these young men when they return from the schools. Our older employees have done a magnificent job in this respect.

As the young men complete their course at the schools, they report to a trainmaster and he assigns them as switchmen, firemen or trainmen. For the purpose of learning the road or yard, they are assigned to work 8 hours per day, for which they are compensated at the rate of 50 cents per hour. After they are thoroughly

This article is derived from an address delivered by Mr. Johnston before the recent annual meeting of the American Association of Railroad Superintendents.

familiar with the yard or road, they are examined by the trainmaster on the book of rules and, when passed, are assigned to regular service. If a lull in traffic should occur, resulting in a reduction in the number of men required, these young men go back to train themselves further in the yard or road and receive 50 cents an hour for each school day until they are needed again in regular work. Before the young men are sent to the schools, they are examined by our company doctors who give them a physical certificate. Additionally, a minor's release is executed by the parents. One of the outstanding features of our instruction is the field class.

We also operate eight telegraph schools. Primarily, the procedure that is followed here is to co-operate with a high school located at a given point, and to recruit a large number of students to take a telegraph course. Instruction is given by some of our best operators or dispatchers. We now have 300 operators in our service who have taken their instruction in these schools. The larger percentage of these operators are young women, and we have encouraged women to take such courses in preference to young men. During the course, in addition to giving instruction on the Morse code, some attention is paid to the book of rules and to the issuance of train orders. Some instruction is also given in station work. A manual has been prepared, setting forth the rules, reports and records covering station operation, for the guidance of new and inexperienced employees. When these students have completed their course, they are taken into the service at stations where they can be given additional instruction by the agent in charge, and are compensated at the rate of 50 cents per hour for eight hours. When regularly assigned to a station, they are given the rate of pay allowed at that point.

Student Clerks

Following the establishment of our schools, we established training also for "student clerks." Primarily, we have used young women for this work, since any young men whom we obtain are assigned to train and engine service. Except for our suburban service on the Chicago Terminal area where we have some 60 to 75 young women employed as train collectors and train flagmen, we are using young women primarily as student clerks. Compensation is on the same basis as the other students —50 cents per hour for eight hours per day. These student clerks are given courses of instruction in freight house and yard office duties especially. They are not permitted to perform any work until it is felt by those in charge that they have attained sufficient proficiency. After attaining this proficiency, they are then assigned to clerical positions and compensated accordingly.

Rating Charts Employed

We are also training what are known as student-dispatchers. These students are, generally speaking, selected from operators in service. To the extent that is practicable, rating charts are used which include personality, ability, age, aptitude, etc. These men are brought in to the division dispatching offices at various locations to observe the performance of each dispatcher on each of the tricks. They are later permitted to perform the work while the dispatcher observes. Practically all of the men selected have developed into first-class dispatchers and in some cases they are now breaking in for future chief dispatchers. During their student term they are compensated on the basis of $168 per month.

Looking to the post-war period, a committee has been established on the Illinois Central known as the Employment Practices Committee, and one of its functions is to devise a post-war training program for all employees. This committee is composed of a representative from each department.

Rock Island

(*Continued from page 335*)

fer. Alemite grease lubrication is used on rods and motion work.

The foundation driver brake equipment is the Schedule N 280.114 supplied by the American Brake Division of the Westinghouse Air Brake Company. The operating brake is Westinghouse No. 8 ET. Air is supplied by two 8½-in. cross-compound compressors and the main-reservoir storage consists of two 22½-in. reservoirs, one 72-in. in length and the other 120 in. long. The total reservoir capacity, including the sump reservoir, is 72,223 cu. in.

The cab is the welded steel type equipped with Prime front and clear-vision windows and windshields. There are two seats on the left side of the cab and a single seat for the engineman on the right side.

The Tender

The tanks of these tenders, rectangular in design, have a water capacity of 21,500 gals. and a fuel oil capacity of 5,500 gal. The tanks are mounted on a General Steel Castings Corporation water-bottom underframe. The tender trucks are the Buckeye six-wheel center-bearing type with ASF clasp brakes. The tender wheels are 36 in. in diameter, mounted on medium carbon-steel axles operating in Timken roller bearings. The tender draft gear is Miner A 22 XB with National couplers and yokes. The Franklin radial buffer is used between the engine and tender. Vapor steam-heat connectors are installed at the rear of the tender and Barco flexible connectors are used for air, oil and steam lines between the engine and tender.

Berge's Charges Are Flatly Denied

Judge Fletcher assures the Senate Kilgore committee the Western Agreement was not secret and rate bureaus do not abet discrimination — Railroad research described

WASHINGTON, D. C.

STATEMENTS made by Wendell Berge, assistant attorney general, in a recent speech in Kansas City, Mo., to the effect that the railroads have employed secret organizations and methods to maintain "discriminatory" rates and to restrain technological development were flatly denied before a Senate committee on August 17 by R. V. Fletcher, vice-president of the Association of American Railroads.

Declaring that he was not sure there was any other forum available to him to make the statement at this time, Judge Fletcher appended his remarks on the Justice Department spokesman's anti-railroad expressions to a formal statement outlining the railroads' program of research, particularly that having to do with postwar problems, which he made to the subcommittee on war mobilization of the Senate committee on military affairs, the so-called Kilgore committee. The chairman of the subcommittee, Senator Kilgore, Democrat of West Virginia, was present, as was its principal investigator, Dr. Herbert Schimmel.

Little New in Berge's Assertions

Many of the ideas embodied in Mr. Berge's Kansas City speech (reported in *Railway Age* of August 12, page 278) had been expressed by him before the Kilgore committee at an earlier hearing, as noted in *Railway Age* of February 19, page 400. Those portions of his remarks which had to do with the so-called Western Agreement and with alleged conspiracies on the part of the railroads to fix and maintain freight rates said to be discriminatory to the West and South were discussed by Judge Fletcher.

The so-called rate bureaus in which the Department of Justice attempts to find something sinister have been operating for more than 50 years, the A. A. R. vice-president reminded the committee; the Interstate Commerce Commission has been fully aware of their activities; and there has been nothing secret about them. They afford a channel through which all shippers, small as well as large, and all railroads may keep themselves informed of all proposed changes in rates, and may have an opportunity to express themselves before the changes are made. Rates are initiated by the railroads, not by the bureaus, he pointed out, and all changes in rates are subject to the approval of the Interstate Commerce Commission and the state regulatory bodies, so there is no opportunity for rates to be maintained at levels which are not in the public interest.

Referring to the charges of territorial discrimination in rates, Judge Fletcher pointed out first that the I. C. C.'s investigation of class rates was in progress, and that that was the proper place to obtain correction of any discrimination that might be found to exist. If there is discrimination, he went on to say, the commission is perfectly competent to correct it, and if there is any, it has nothing to do with the method of making rates through 50-year-old rate bureaus about which the anti-trust division has lately shown so much concern. He then called to the committee's attention certain examples of so-called discriminatory rates which Mr. Berge had used in his widely-publicized remarks, and which appeared to show that shippers in the South or West had higher rates on various commodities than eastern shippers of the same articles for the same distances.

Berge's Figures Challenged

The facts are, he pointed out, that several of the rates quoted by the assistant attorney general are not the effective rates covering traffic actually moving between the localities named, and that, as he showed by quoting the appropriate figures, the rates generally applicable to actual shipments are not as far apart in the different territories as those which Mr. Berge chose as instances of discrimination. The rate structure is so immense, Judge Fletcher explained, that isolated examples to prove practically any argument can be found in it. To illustrate this point, he named a number of cases where rates on the same commodity for equal distances are much less in those parts of the country which are said to suffer from discrimination than in Official Territory.

The witness already had discussed the Western Agreement at some length, emphatically denying that it was a secret arrangement or that it had interfered with technical progress. It was worked out and entered into in the early years of the depression in response to a suggestion from the I. C. C. that measures be taken to curb what were termed wastes due to excessive competition, he told the committee. "It was announced and published to the world. Its workings were known and understood by all those at all informed as to transportation."

This agreement, he insisted, not only was not intended to and did not have the effect of hindering progress and development but, on the contrary, did assist in carrying forward these advances in an orderly way. "It is a matter of common knowledge, in fact," he declared, "that nowhere in the country has there been more progress in railroading of late years than in the very territory covered by this agreement." Judge Fletcher read into the committee record also excerpts from two statements submitted to the Senate committee on interstate commerce in its investigation of the alleged monopolistic implications of this Western Agreement; one in which W. Averell Harriman, chairman of the board of the Union Pacific and ambassador to Russia, explained the reasons for the agreement and hailed the state of preparedness for the war emergency which the railroads had attained under it, and another in which the late Joseph B. Eastman had denied that the Western Agreement was secret and asserted that it was the result of urgent suggestions from the government that competitive practices be restrained. (These statements were reported at some length in *Railway Age* of June 19 and 26, 1943, pages 1229 and 1259, respectively.)

The occasion of the appearance of the A. A. R. vice-president before the Kilgore committee was to have

formally placed in the committee's record the comprehensive report on the railroads' wartime performance and their long-range research program which was reviewed in *Railway Age* of June 3, page 1078, as well as to outline with relative brevity certain aspects of these documents in which the committee had exhibited particular interest. It was understood that the committee would hear later, at a time to be set by the chairman, a statement by Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, showing the effect of these research activities as reflected in railroad operating results, and another, summarizing and explaining the progress of railroad research in the technological field, by C. H. Buford, vice-president of the A. A. R.

Judge Fletcher pointed out that the "extensive questionnaire" submitted by the Kilgore committee had been answered at the time the railroads' written statement was submitted. "Every effort had been made to answer the questions fully and candidly," he said. "Some of them were difficult to answer categorically, by reason of an evident misapprehension of the true situation on the part of the framer of the questions."

One unfamiliar with the subject, for example, he observed, might derive from reading the questionnaire an incorrect impression of the character of the A. A. R. "It is something more than a trade association, but it is in no sense a super-government, with dictatorial authority. It has none of the qualities of Fascism. . . . Over and over the question is asked as to whether the association has asserted its power to compel the adoption of certain methods and devices, thought to be in the interest of safety and efficiency. The association has no power to compel one of its members to buy and install a particular patented or unpatented article, or adopt a particular method of operating its railroad. Any attempt by the association to exercise such authority would lead to its immediate dissolution."

How Railroad Research Is Carried On

The witness went on to describe the functions of the 200-odd technical committees which carry on the regular research program of the A. A. R., and to enlarge somewhat upon the work of the special committee created to undertake the study of the railroad situation as it would probably exist after the war is over. This committee, and its various subcommittees, have been allotted $300,000 to support such special research in the matter of postwar conditions and postwar policies, he explained, and it is expected that the entire study will be completed by the end of 1945. Several subcommittees already have prepared preliminary reports, he added, these being offered with other material submitted to the Kilgore committee.

The possibility exists, Judge Fletcher observed, that the work being performed by the 15 active subcommittees participating in the railroads' postwar research program ultimately will be taken over by a new department of the A. A. R., to be in charge of a vice-president, which will be devoted exclusively to economic and technological research. "Of one thing the country can be assured," he declared. "The railroads are alert to their obligations and their opportunities. They have served the nation superbly in time of war. They will be equally efficient in time of peace. And to this end, no research activity will be overlooked, if there is any rational promise of improvement."

The witness referred further to allegations that technological progress had been retarded through the operation of the Western Agreement. "Very obviously, so far as air conditioning is concerned," he said, "its development has been rapid. In the very beginning, there was naturally some hesitation in spending large sums of money for particular methods of air cooling until the best systems had been tried and proven. Ambitious salesmen were clamoring then, as they are now, for the adoption of particular plans, schemes and devices. But in the 'Thirties, the railroads, by no means flush of funds, very properly voted for an orderly, scientific and sensible development of air conditioning. The only steps, I am advised, taken by the [western] commissioner were in the direction of checking the wasting of money in unwise experiments.

Schedules Shortened Under Western Agreement

"So far as the control of freight schedules is concerned," he continued, "it is obvious that some attention must be given to the effect of schedules on the welfare of competing points of production. To take the California citrus producing section as an example, there are various citrus sections of the state, situated on different railroads, some more capable than others of giving quick service to an important market like Chicago. The citrus industry was extremely desirous that all these orchards should have an equal chance in the great eastern markets. It is certainly not true that the western commissioner took any action that slowed up schedules as an entirety. This is shown by the fact that during the operation of the Western Agreement, perishable schedules eastbound were reduced from ninth morning delivery to seventh morning delivery. Westbound, the basic freight schedules were reduced so that there was sixth morning delivery in place of ninth morning delivery. In the matter of passenger train schedules, the running time between Chicago and San Francisco was reduced, in the commissioner period, from a maximum of 84 hours to a minimum of 39 hours and 45 minutes. The thing speaks for itself."

Answering Senator Kilgore's inquiries about the possibility that the railroads might pool sleeping car operations somewhat as freight cars are pooled, as a result of the court order which has led Pullman, Inc., to elect to dispose of its sleeping car business, Judge Fletcher indicated that the problem of continuing Pullman car operations might be met in one of three ways: (1) Individual roads might buy sleeping cars to meet their normal needs and arrange for a pool to be operated through the A. A. R. Car Service Division to meet peak requirements; (2) the railroads might form a subsidiary company, somewhat like the Railway Express Agency, to operate all sleeping cars; or (3) they might buy the existing Pullman Company and so take over the existing organization. While he thought one of the first two alternatives most likely to be adopted, he pointed out that certain legal difficulties incident to an agreement effecting any such plan might have to be worked out with the Department of Justice.

"The railroad industry has no apologies to offer," said Judge Fletcher in concluding his statement. "However, there has been much misconception, in Congress and elsewhere, upon this subject of railroad research. Perhaps the railroads are censurable for their failure to acquaint the public with the facts as to their diligence and zeal in seeking to prove, develop and adopt every device which would be in the interest of safe, efficient and economical operation. They have a highly creditable record in all these respects. Statistics show that even in the year 1943, a year of two or three regrettable accidents, passengers on railway trains were safer than on the highway, in the air, on the sea, or even in their own homes."

Antitrust Action Against Roads

Department of Justice files complaint alleging violations of Sherman Act by A. A. R., western lines, J. P. Morgan & Co., Kuhn, Loeb & Co., and others

WASHINGTON, D. C.

FOLLOWING through from the advance billing provided in recent speeches of Attorney General Biddle and Assistant Attorney General Berge, the Department of Justice on August 23 filed in the United States District Court at Lincoln, Nebr., a civil complaint charging violations of sections 1 and 2 of the Sherman Antitrust Act by the Association of American Railroads and its officers and members of its board of directors, the Western Association of Railway Executives, 47 western railroads and their chief executives, J. P. Morgan & Company, Inc., Kuhn, Loeb & Company, and 31 other individuals alleged to have been associated at one time or another with the violations charged.

In the Washington, D. C., announcement of the action, Attorney General Biddle summed up the complaint as one charging "that a combination of private financial, industrial, and railroad interests have acted collusively to maintain non-competitive rates for transportation and to prevent and retard improvements in the services and facilities of railroads for the western part of the United States. It also charges that the defendants have retarded and suppressed the development of the motor carriers and other forms of transportation competitive with the railroads in the western area."

Asks Dissolution of A. A. R.

The complaint asks the court to dissolve the A. A. R. and the Western Association; and, as the press release put it, "seeks an injunction against all defendants to prevent the revival or continuance of any of the offenses charged, and to prevent the continuance, revival, or reinstatement of the Western Agreement, the Western Commissioner, or the Committee of Directors, and from setting up any similar plan to restrain trade and commerce in violation of the Sherman Antitrust Act."

Along with the complaint, the Department of Justice made public copies of two documents taken from A. A. R. files and included as exhibits in the record of last year's Senate interstate commerce committee hearings on S. 942, the pending bill to give legal recognition to carrier rate bureaus by placing them under the control and supervision of the Interstate Commerce Commission. One of the documents was an October 11, 1938, statement listing specific instances wherein the A. A. R. Traffic Department's intervention in rate matters under consideration by railroads or groups of railroads had resulted in such proposals "being either withdrawn or modified in a constructive way that has prevented reductions in other directions." The 21 instances listed are called "only the high points," as the statement concludes with a "conservative estimate" that Traffic Department activities in the first four years of its existence had saved the railroads "not less than $12,000,000 or an average of not less than $3,000,000 per annum."

The other document was an October 12, 1937, memorandum from the Traffic Department to A. A. R. President J. J. Pelley. It listed similar activities for the previous 12 months, calling them the Traffic Department's "greatest achievements," which were set down for Mr. Pelley's information with the advice that they should not be mentioned "for reasons with which you are thoroughly familiar." The list of seven achievements included: Action of the board in forestalling a further reduction of 10 cents in the citrus-fruit rates to all Official Classification territory with the exception of seaboard points to which water compelled rates were in effect; persuading the western lines not to take advantage of the permission obtained from the commission with reference to the reestablishment of intermarket transit on grain; prevailing upon the Missouri-Kansas-Texas not to make changes in reconsigning rules which would have been costly to the railroads throughout the country.

Says Each Road Should Initiate Own Rates

Assistant Attorney General Berge said that activities such as those set forth in the documents indicated the type of alleged violations on which the whole complaint rests. One of the main points, as he put it, is the "coercion and collusion" in rate-making procedures before the stage of filing tariffs with the I. C. C. is reached. It is the Department of Justice's contention that each railroad should file its own tariffs without "collusion." Mr. Berge said that the I. C. C. is not set up to go into the question of "collusion"; that is an antitrust matter.

Asked if there would be any immediate relief to shippers in the way of lower rates, Mr. Berge expressed the view that the filing of the complaint would tend to stop the assailed practices. He also revealed, in response to another question, that the Department is investigating rate-making procedures in the South. However, he does not now know of any counterpart of the Western Agreement there or in any other section of the country.

Allegations of Complaint

Meanwhile, Mr. Berge had listed the complaint's allegations as follows:

(1) That by collusive and illegal action, the defendants have maintained freight rates for the western part of the United States which are higher than those fixed by the defendants for shippers in the East and that this inequality has deprived the West of the advantage of low competitive rates and has operated as a detriment to its economic development.

(2) That the conspiracy by the defendants has stifled the utilization of improved railroad technology; that the defendants have retarded the introduction of radio equipment on trains, delayed the installation of air conditioning equipment, and prevented the construction of essential spur tracks and loading sheds.

(3) That the defendants have deliberately delayed the delivery of perishable products; that they have collusively refused to permit the reduction of rates by certain railroads for the relief of drought-stricken areas, despite the fact that such reductions were requested by officials of the United States Government.

(4) That the defendants, by conspiring with the major oil companies owning and operating common carrier pipe lines, have fixed arbitrary and non-competitive rates for the transportation by rail and pipe line of petroleum and petroleum products and that thus the advantage of low-cost shipment by pipe line was denied to the West.

(5) That the defendants have conspired with motor carriers and water carriers to bring motor and water carrier rates up to the higher rail level.

(6) That the defendants have established an organization called the "Highway Department" within the Western Association of Railway Executives; that the declared purpose of the "Highway Department" is to retard the development and growth of the trucking industry, particularly in the long-haul field, in the western part of the United States; and that this has been and is being accomplished by various methods, including concerted action by the railroads to cause the enactment of state laws restricting the development of the trucking industry.

(7) That the defendant railroads entered into an agreement, called the Western Agreement, which established the Office of Western Commissioner; that the Commissioner acted as the arbiter in matters relating to transportation rates and services in the western part of the United States; and that his activities were subject to review only by a Committee of Directors, established by the Western Agreement.

(8) That the defendants J. P. Morgan & Company, Incorporated; Kuhn, Loeb & Co.; and their affiliates have for many years controlled and still control substantially all the financing operations and security issues of the defendant railroads; that these banking firms have similar control in relation to many eastern railroads, as well as substantial financial interests in numerous large industrial concerns in the East. That defendant J. P. Morgan & Company, Incorporated, and its predecessor, in fact participated in the organization of the Association of American Railroads; that these banking firms are represented on the Committee of Directors established by the Western Agreement, and have taken part in the collusive fixing of non-competitive rates; and that they have collaborated through their representatives on the Committee of Directors to coerce officials and defendant railroads from reducing rates and improving services and facilities of the Western Railroads.

Rates "Fixed Through Private Agreements"

"The Antitrust Division," the assistant attorney general continued, "has for some time been conducting an investigation into certain practices of the defendant railroads. Among the practices investigated were the methods and machinery for making rates. It was found that most of the rates were fixed by the defendants through private agreements which the Department now charges are illegal and collusive. It is the Department's position that there is no justification in the Interstate Commerce Act for the practices charged in the complaint. The Interstate Commerce Act does not authorize competing carriers to agree on the rates to be filed. Indeed, under the Act it is the duty of each carrier to initiate its own rates. The case raises no question as to the right of connecting carriers to agree on joint through rates in accordance with the Interstate Commerce Act."

In that part of the press release which quoted Mr. Biddle, the attorney general justified the complaint in this way: "The suit is under the Sherman Antitrust Act, which applies to railroads even though many aspects of their business are subject to regulation by the Interstate Commerce Commission. . . . Agreements, combinations, conspiracies, and activities of the kind charged in the complaint violate the Sherman Act and are not authorized by the Interstate Commerce Act or any other act of Congress. The Supreme Court has held that 'the Antitrust Act applies to the railroads' and that 'the commission has no power to enforce the Sherman Act as such.' Consequently, it is the duty of the Department of Justice to take action against these practices which so vitally affect the people of the western part of the United States and the national economy as a whole."

The statement of Chairman Johnston, of the Western Association of Railway Executives, regarding this suit is reported on page 346.

An Ill-Timed Prosecution

In filing an anti-trust suit against a number of railroads, railroad associations, rail executives and two banking firms, Attorney General Francis Biddle may or may not have adequate grounds for prosecution. That will be determined eventually by the courts. But in bringing action in the midst of war, and at a time when the railroads need to concentrate on their transportation jobs to the exclusion of every other consideration, Mr. Biddle, to put it mildly, displays a distinctly bad sense of timing.

The voluminous charges, as forecast two weeks ago, that the railroad interests have acted collusively to maintain non-competitive rates and prevent improvement in service in the western part of the United States, appear to have reference to alleged wrong doing in the past and are not based upon any policies recently initiated. Why, then, is it necessary to institute prosecution at this critical time?

The railroads are performing their part in the war program in magnificent fashion. They are carrying millions of men of the armed services and unbelievable quantities of war materials. All this, in spite of the fact that for many years before the war they were a continual target for any half-baked politico to shoot at and were hampered by legal restrictions and bureaucratic controls to an extent which seriously threatened their successful operation.

We are in agreement with the opinion expressed yesterday by a western railway official that if the actual purpose of this suit were to produce national unsettlement, while the war is still going full blast and while plans are being made for the reconversion of industries to a peacetime basis, a better point of attack could not have been chosen.

—From the Philadelphia Inquirer.

* * *

Boston & Maine Lantern-Bearer

Miss Frances Zagurski, former dress factory employee, enjoys being a railroader. Equipment clerk, at Mechanicville, N. Y., she passes out lanterns, fusees, torpedoes, waste, valve oil, car oil—even ice for the locomotive's drinking water tank—to incoming or outgoing locomotive crews.

Electric Locomotives for Brazil

2,000-hp. narrow-gage units with regenerative braking are used in both passenger and freight service

By R. L. Chapman* and O. K. Kjolseth*

THE Sorocabana Railway in inaugurating electric traction on its extensive meter-gage system has selected the 87-mile long double track section between Sao Paulo and Santo Antonio in the State of Sao Paulo, Brazil, for the initial electrification. Twenty locomotives will handle passenger, freight and mixed trains with scheduled speeds of 35 m.p.h. for passenger, and 30 m.p.h. for freight and mixed trains over a mountainous terrain involving maximum grades of 2 per cent, and prevailing minimum radium curves of approximately 800 ft.

These locomotives are the largest and most powerful 3000-volt dc. meter-gage units built to date, and are among the outstanding examples of design and construction embodying all welded fabrication of mechanical parts and assemblies for main-line passenger and freight locomotives. Ten are being furnished by the General Electric Company and ten by the Westinghouse Electric and Manufacturing Company, with the mechanical portion of all twenty built by the General Electric Company. In addition to the mechanical portions which are identical much of the equipment as furnished by the two companies is either identical or physically and electrically interchangeable. Pantographs, traction-motor blowers, watt-hour meters, and high-speed JR circuit breakers are identical with all pantographs manufactured by the Westinghouse Company, and all breakers manufactured by the General Electric Company. Traction motors and motor-generator blower sets are interchangeable.

The running gear consists of two three-axle driving trucks and two single axle radius bar guiding trucks. The driving truck frames are articulated at their inner end by a ball joint arranged to permit angular movement in both vertical and horizontal planes. The outer ends extend over the guiding trucks and carry draft gear, coupler and pilot. The frames are fabricated of steel plates and structural shapes throughout with all parts torch-cut to size requiring little or no machining. Side frames are universal mill-rolled open-hearth steel 3½ in. thick, normalized, with an ultimate tensile strength of 55,000-65,000 lb., maximum carbon content 0.25 per cent.

The guiding trucks are equipped with outside journals and rolled steel wheels. Semi-elliptic and coil springs are arranged in series over the top of the journal boxes. A laterally movable bolster is provided on which a portion of the locomotive weight is carried through a system of equalizers extending from the springs over the outer driver boxes. The bolster has a variable gravity restraint device of relatively high initial restraint to steady the locomotive and minimize lateral oscillations when running on tangent track, and to assist guiding of drivers when negotiating track turnouts and curves. An extension of each guiding truck inner frame serves as a radius bar connecting it to the main truck frame. These truck

* General Electric Company, Erie, Pa.

NOTE: This article is derived from a paper presented June 30 to the American Institute of Electrical Engineers, St. Louis, Mo.

Table I—Characteristics of G-E Locomotives for Sorocabana Railway

Classification, I-C C-1-238/286-6 GE 734A, volts	3,000
Length overall, inside of coupler knuckles, ft	61
Width overall, ft.-in.	9-7⅞
Height over trolley locked down, ft.-in.	13-7 7/16
Track gage, meter	1
Total wheel base, ft.	50
Rigid wheel base, ft.	13
Diameter driving wheels, in.	44
Diameter guiding wheels, in.	33
Total weight in running order, lb.	286,000
Weight on drivers, lb.	238,000
Weight per driving axle, lb.	39,666
Weight on guiding axles, lb.	48,000
Weight per guiding axle, lb.	24,000
Number of motors	6
Gear ratio	75/17
Continuous rating, hp.	1,910
One hour rating, hp.	2,195
Continuous tractive force, lb.	24,475
One hour tractive force, lb.	29,500
Speed, continuous rating, m.p.h.	29.3
Speed, one hour rating, m.p.h.	27.9
Maximum safe speed, m.p.h.	56

frames are also fabricated from torch-cut steel plates and structural shapes readily adapted to welding.

The weight of the locomotive, with the exception of wheels, axles, journal boxes, and that part of the motors which is carried directly on the axles, is carried on a system of semi-elliptic and coil springs equalized to provide the desired loading on all wheels.

Cab Details

The cab underframe or platform is constructed of commercial steel shapes, bars, and plates. The structure is about 54 ft. long by 9 ft. wide. The center sills, which are the main load carrying members of the frame, consist of two 18 in. by 12 in. H-beams reinforced with top and bottom plates of ½ in. thickness, forming a central duct serving as a pressure chamber into which air is discharged from two motor-operated blowers. From this chamber ventilating air is distributed to traction motors, accelerating resistors, and other electrical apparatus. Side and end sills are made of 8-in. standard steel channels. Bolsters supporting center plates, side bearings, and lifting lugs are rigidly tied into center and side sill members. The 18-in. sill members extend well beyond the bolsters, and are joined with 8-in. H-beams extending to the ends of the frame.

The cab is of semi-streamlined design. One of the center plates is arranged for sliding motion in the lower or truck socket to compensate for variations in truck center plate distance when operating on curved track. Additional supports are provided through four spring-cushioned loading pads slideably supported, one on each side of each driving truck. The loading pad springs are calibrated to give the desired load distribution on all driving and guiding wheels.

The cab consists mainly of exterior sheets .180 in. thick welded to a 4 in. steel channel frame erected on the cab underframe. There are louvres in the side sheets of the central portion of the cab for ingress of air to the motor-blower sets. Large hatch openings in the roof which facilitate installation and removal of apparatus are closed by bolted-down hatch covers. The apparatus compartment is built as a separate unit to facilitate easy installation of control apparatus and wiring. After the installation of apparatus and wiring is complete, the compartment is lowered through the hatch opening in the cab, and is securely welded to the underframe and roof structure.

The air brake equipment is a combination of vacuum and compressed air systems with the locomotive brakes operated by compressed air and the train brakes operated by vacuum. Interlocking prevents simultaneous operation of air brakes and regenerative braking to avoid the possibility of wheel sliding during regenerative braking.

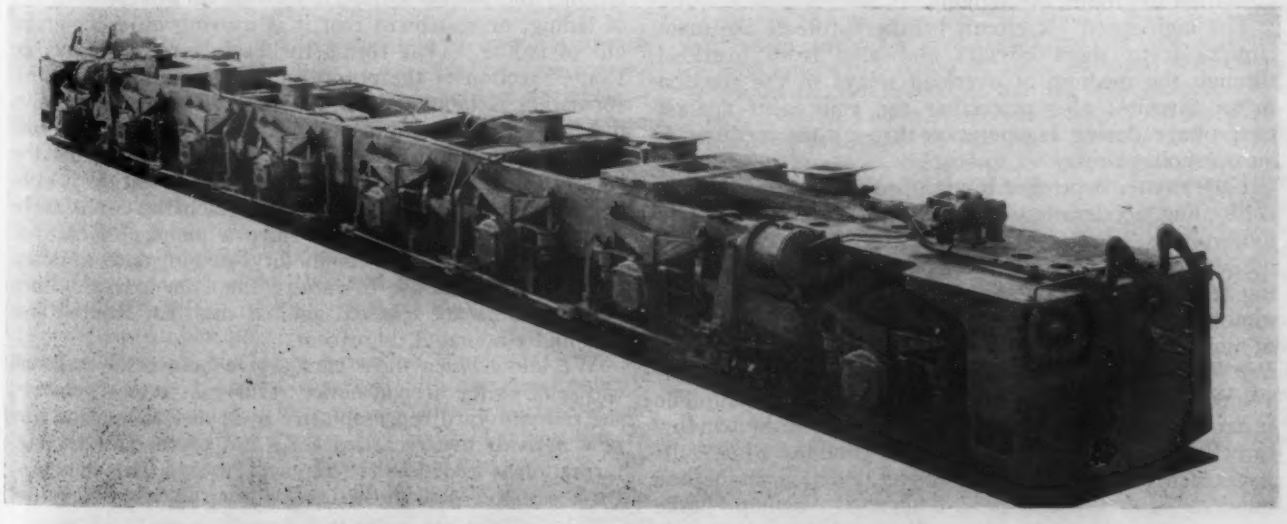
The space between the operator's cabs is divided into three sections. The apparatus compartment, completely enclosed but with access doors and with removable covers along the aisles on each side, is in the center, while auxiliary apparatus such as motor-generator-blower sets, compressors, exhausters, and air brake control devices are located at each end.

Electrical Apparatus

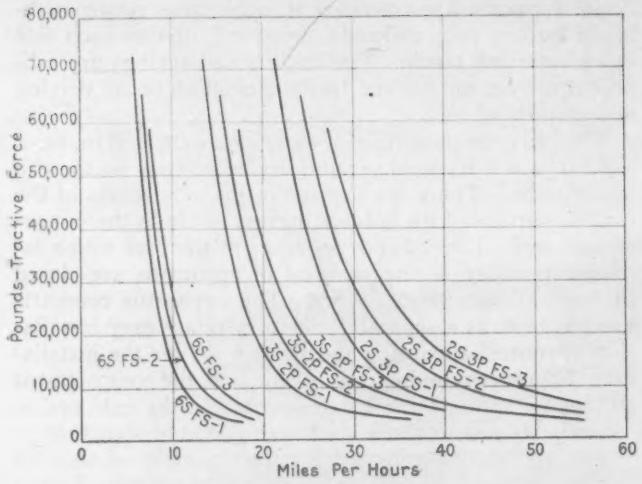
Two spring-raised, air-lowered pantographs are provided, either of which has adequate capacity for collecting total locomotive current from the 3000-volt overhead line. The two pantographs are connected together through a cable mounted on insulators on the roof and to the main power circuits through the protective devices mounted in the apparatus compartment in the main cab.

The traction motors are wound and insulated for operation two in series on 3000-volts and are of the commutating-pole forced-ventilated type with anti-friction bearings.

The motor circuits are arranged for three combinations of motors: six in series, three in series with two such groups in parallel, and two in series with three such



Complete Assembly of Driving and Guiding Trucks



Locomotive Speed—Tractive Force Curves

groups in parallel. Accelerating steps, one full-field, and two reduced-field running steps are provided for each motor combination thus making a total of nine running steps in motoring. Regenerative braking is available for each of the three combinations of motors.

The auxiliary equipment duplicates that previously used on locomotives for the Paulista Railway, and consists of two 3000/65-volt motor-generator-blower sets, two 65-volt exhausters, and one 65-volt compressor.

Control Equipment

The high voltage control equipment is located in the apparatus compartment in the center of the locomotive and includes the accelerating resistors, braking resistors, main circuit contactors, series paralleling switch, reverser, JR circuit breaker, and other protective apparatus, switches and fuses. The low-voltage equipment is located in the two operating cabs and includes the master controllers, voltage regulator, pantograph magnet valves, control circuit switches, and fuses and instruments.

Cast iron grids are used for the high current sections of the accelerating resistors while those in the lower current sections and in the braking circuits are formed of edgewound strips of resistance alloy. All are insulated from their supporting frameworks which are in turn mounted on porcelain insulators thus affording double insulation to ground throughout.

The high-speed JR circuit breaker protects the main circuits from short circuits and also from overload through the medium of overload relays in the traction motor circuits; also protecting the equipment against overvoltage during regeneration through the medium of an overvoltage relay.

Each master controller is equipped with a main handle controlling accelerating and full field running steps in motoring, a selector handle for selecting motor combinations for regenerative braking, a braking handle governing regeneration and also governing shunt field steps in motoring, and a reverser handle for selecting direction of motion of the locomotive. All handles are mechanically interlocked to prevent improper operation and are conveniently located and in easy reach of the operator. The instrument panel is mounted beneath the front window directly in front of the engineer and contains a line voltmeter, traction motor field ammeter, traction motor line ammeter, locomotive speed indicator, vacuum brake gauge, and an air brake gauge all of which are indirectly illuminated from the rear of the panel.

The air and vacuum brake valves are on the right of the operating position, the master controller on the left. Bell ringer and sander valves, control push buttons and valve for the pneuphonic horn are all mounted so as to require a minimum of movement on the part of the engineer. A record of power consumed during motoring and of power returned to the line when regenerating is obtained by means of a duplex watt-hour meter.

Car Control at a Quartermaster Depot

Lt. Col. C. D. O'Neal*

WE think we are doing well in our efforts to conserve car supply at Jersey City—but not well enough. We have not achieved the perfection at which we are aiming, which is to unload all cars within 24 hours. At our headquarters warehouse we have a track capacity of 18 cars to serve a multiple floor storage area of considerably over a million square feet. It is a busy place with a complete turnover about every sixty days. To accommodate the inbound and outbound movement of cars with two scheduled drills per day, and a third or fourth in special situations, means that we are engaged in a constant game of checkers with cars. Much of our tonnage, in and out, is handled by motor trucks, and some by barge, but the greater proportion is handled by rail.

Our report for the first quarter of this year shows a total of more than 2,000 cars, inbound and outbound. Of the inbound we unloaded before free time 310 cars; during the first day of free time 597 cars were unloaded, and 387 cars during the second day. There were 123 cars unloaded after 48 hours. Within free time more than 91 per cent of all inbound cars were unloaded. All of the outbound cars were loaded within 24 hours. There were 439 net credits on inbound, and 562 on outbounds.

The Morning Report

Here is how our morning report is prepared and what is done with it. We receive a telegram from the shipper the day a car is shipped, showing car number, contents, weight, and bill of lading, if moving on government bill of lading, or statement that it is moving on commercial bill of lading. That forms the basis for our "Cars en Route" section of the report; and each morning this information is tabulated for the report. Also, we receive bills of lading by mail, usually before the car arrives, and these are checked against the record to be sure that the cars are on the report. This "En Route" section is subdivided to show the warehouse at which the car is to be placed on arrival. Thus we have a picture of cars en route, by car number, commodity, origin, date of shipment, and warehouse to receive them on arrival. Each day's arrivals are checked against the "En Route" section and eliminated therefrom.

We know when most cars arrive before the railroad can send us the arrival notice. Our car service man and the railroad yard representative meet at 8 a. m., and any new arrivals are recorded then and there, and this information is added to the report. At this time they also get a report of cars in the break-up yards, which may not

* Transportation Officer, Jersey City Quartermaster Depot, U. S. Army. This article is an abstract of an address at the Atlantic States Shippers Advisory Board meeting, Syracuse, N. Y., April 13.

be reported as arrivals for placement until they are brought down to the service yard. This may be later in the same day, or even a day or more later, depending upon conditions. But we have the advantage of knowing what is in the outer yard, and this information can be used in our planning. The information developed at this early morning meeting frequently results in cars being placed and unloaded the same day, before free time begins. There are many instances of such cars arriving, being unloaded, reloaded and shipped out the same day, before free time began on the inbound movement.

Instructions to Shippers

The section of the report showing cars in yard is generally divided between "Cars for Overseas Storage" and "Cars for Domestic Storage." In addition to the date of shipment a second column shows date of arrival. This information also appears in the sections showing cars placed and cars unloaded. If a car arrived on the 4th and was not unloaded before the expiration of 24 hours, this is starred and responsibility for delay shown—whether railroad or warehouse delay. Somebody must explain this.

A great advantage in showing both shipping date and arrival date is that we gather experience as to the time generally required en route from many points of origin in every state in the Union. We have tabulated these figures from time to time, and by taking the average and making a slight addition we can establish a reasonable date of expectancy on more than 75 per cent of our inbound shipments. This information is of definite value in our pre-planning.

I should say something about our instructions to shippers. Every government bill of lading sent to contractors is accompanied by a sheet of shipping instructions from my office. The shipper complies with whatever instruction is applicable. One, of the first importance, directs him to send a telegram when shipment is made, and this is the advance information mentioned that forms the basis of our morning Situation Report. The shipper is also instructed to load cars to full visible or physical capacity. If that is not done, and there should be additional freight to move on the same order, we request information as to why the car was light-loaded. We keep it before our shippers that car space, as well as car time, must not be wasted.

The Daily Situation Report

This matter of estimating the time en route is now a very live subject in the office of the Chief of Transportation, and it is quite possible that some important developments in the way of regional estimates on time en route will result. Certainly the time en route from various points to Jersey City cannot be translated into miles per day that could be used generally throughout the country. This daily Situation Report is becoming more valuable each day in planning our work ahead. With an ever increasing turnover of supplies and the ever growing quantities handled, the necessity for planning further ahead forces itself upon us.

The form of our daily Situation Report is what we deem to be most nearly in accord with our requirements. It is flexible and can be prepared in any desired shape for convenience. Here are a few ways in which the report is used by our Stock Control Division:

Incoming Property Section directs shipments to proper locations when the "Cars en Route" sheet shows any departure from the official warehouse plan.

Subsistence Section gets advance information on items for filler stocks, if cars are in yard, in which event no shortages are reported. The en route information is used for diversions to ports on rush shipments. Otherwise, cars would arrive and then have to be reconsigned to the new destination, causing additional expense and loss of time, both to shipment and car.

The General Supplies and Clothing Sections use the same information for stock availability.

The Storage Division uses the report to pre-plan space allotment and labor requirements. It is utilized to determine congestion probabilities. If car arrivals are in excess of planned space other space must be provided, and placement orders must be changed correspondingly. If space cannot be provided, and cars are en route, request for diversion to a sub-depot or other installations will be made. Every possible effort is made to divert cars while still en route, because reconsignments and back hauls are expensive and time-wasters.

One section of the report is devoted to shipments of overseas sales items, moving inbound on commercial bills of lading. This enables the Overseas Sales Office to keep informed on his movements and is a great aid in handling his problems.

The greatest effectiveness of the report is secured only by prompt action on the part of all divisions and individuals concerned. There must be a full understanding of the implications and possibilities involved in the information presented; and immediate, co-ordinate action must be taken. Once a week we have a meeting of officers of the Stock Control, Storage and Transportation divisions, to discuss related problems and to plan co-ordinated effort.

Time is the most vital element in the whole situation. It said that "time is money." But I say that, in this war, Time is Life! A waste of time in getting a shipment through may mean a waste of life on the firing front.

New Book . . .

Early Railways in Surrey, by Charles E. Lee. 40 pages. 9⅝ in. by 7⅜ in. Bound in paper. Published by The Railway Gazette, 33 Tothill St., Westminster, London, S.W.1, England. Price 2s. 6d.

This publication is an excerpt from the Transactions of the Newcomen Society for the Study of the History of Engineering and Technology for the 1940-41 session, and has been made available in this form so as to be accessible to a wider circle than the membership of that society, to which the circulation of the Transactions is restricted.

The material was first presented publicly to a meeting of the society on December 11, 1940. It represents an elaboration of the contents of a paper entitled "The World's First Public Railway," which appeared in print in 1931, and sets forth, with effective illustrations, the results of much additional research into the origins and development of the two early railway lines in Surrey, south of London, upon which subject the author is a widely recognized authority, and which were, he maintains, the initial forerunners of the modern railroad.

The purpose of this booklet is to set forth the genesis of the Surrey Iron Railway and its extension, the Croydon, Merstham & Godstone Iron Railway, to describe what little is known of their commercial activities, to reveal their fate, to detail some of their engineering features, and to mention surviving traces of their routes and their physical equipment.

The Surrey Iron Railway was incorporated under an Act of Parliament in 1801. The author indicates that there is some doubt as to just when its operation began, though the date of its virtual completion was about June 1, 1804. Traffic was discontinued on its main line on August 31, 1846. It was a toll road, providing a roadway for the operation of privately-owned rolling stock, but it exercised some control over the dimensions of these vehicles. The booklet gives many interesting scraps of information about the construction of the track and roadway structures and the problems overcome in engineering this pioneer undertaking.

Railroads-in-War News

Johnston Sees Suit Introducing Chaos

Says Biddle would substitute pressure groups for I. C. C. in control of rates

Chairman C. E. Johnston of the Western Association of Railway Executives declared on August 23 at Chicago that the anti-trust suit filed by the Justice Department against the railroads (see page 340) "strikes at the keystone of the economic and political structure of the country."

"First," he said, "is the question of whether industry in the future shall operate under the dictatorship of the Attorney General through the questionable process of 'consent decrees' or under regulatory laws prescribed by Congress.

"Second is the question of whether a revolutionary change shall be enforced in the method of establishing freight rates, resulting in widespread dislocation and reshuffling of industries throughout the nation and agricultural production as well.

Design for Chaos—"I wish to point out solemnly that anybody seeking to bring about a condition of economic paralysis at a time when the country is concerned with the successful conclusion of the war, reconversion of industries to peacetime pursuits, jobs for returning armed service men and women, and employment for the workers in closed war plants, could not have chosen a point of attack that would produce national chaos more certainly.

"Biddle and Berge will get the cheers of the elements in our country who are seeking the outright overthrow of our economic system.

"We have known for a long time that this suit was coming. We have neither invited it nor made any move to delay it, although it would have been our preference to concentrate all our efforts on the transportation job until the war was concluded. We are sorry too, that the Department of Justice felt it necessary to file this action in the midst of a national political campaign.

Law Requires What Biddle Attacks—"The railroad industry has been under rigid regulation prescribed by Congress for more than half a century and most of the alleged violations of the Anti-Trust Law with which we are charged are actions necessary to comply with proper regulatory laws and mandates of the Interstate Commerce Commission.

"Charges of regional discrimination in freight rates are political buncombe, pure and simple. Anybody who can write a letter and has the price of a three-cent stamp can file a complaint with the Interstate Commerce Commission. Any dissatisfaction with the commission arises from the fact that it considers complaints on their merits and resists the demands of pressure groups seeking adantages.

"Biddle and Berge propose to liquidate this procedure and set themselves up as the administrators of the railways, and presumably every other form of private enterprise."

Bill to Authorize Fare Cuts for Military Personnel

Chairman Lea of the House committee on interstate and foreign commerce has introduced H. R. 5196 to amend section 22 of the Interstate Commerce Act for the purpose of authorizing common carriers to grant reduced fares to personnel of the armed services while on furlough, or for a period of not more than 30 days following their discharge. Enactment of the bill would provide specific authorization for the reduced fares offered by the railroads in the foregoing connections, thus removing any possible basis for a charge of discrimination against other travelers.

The committee, after a brief hearing on August 23, voted to report the bill favorably to the House with an amendment which would require that the reduced fares which it authorizes be published in tariffs. The amendment was in response to a suggestion from Interstate Commerce Commissioner Splawn who appeared at the hearing. The tariff-publishing idea was opposed by Colonel E. C. R. Lasher, deputy chief of the Army Transportation Corps' Traffic Control Division, who expressed fears that such a provision would affect other section 22 quotations. In the latter connection, Chairman Lea stated that the committee's report would make it clear that it was not intended to alter arrangements with respect to such other quotations.

Former A. C. L. Railroader Promoted in Italy

Charles O. Butler, commanding officer of the 753rd Railway Shop Battalion, Military Railway Service, and former Atlantic Coast Line railroader, has been promoted from the rank of major to lieutenant colonel, according to word from M. R. S. headquarters in Italy.

Before being transferred to the 753rd battalion several months ago, Colonel Butler had performed as master mechanic with an M. R. S. grand division, in this theater of operations. During World War I he served in nearly every enlisted grade, ending up as a first sergeant in the Air Corps. Starting out as captain in the present conflict, he has since received the Soldier's Medal and the Legion of Merit for outstanding services in the African and Italian campaigns.

Sees Big Freight Job Ahead for Railroads

Fall peak, winter weather, and more exacting war demands cited by Johnson

While they proceed to carry an all-time record load of freight, the railroads still face the fall peak, the winter weather with its adverse effect on operating efficiency, and war transportation demands which "promise to be more exacting than ever," according to an August 20 statement issued by Colonel J. Monroe Johnson, director of the Office of Defense Transportation. The O. D. T. director also mentioned "the great volume of non-military freight," attributing it to "the enormous wartime stimulation of production of farm crops, of basic raw materials, and of the miscellaneous commodities demanded by workers with more money to spend."

Traffic Double '39's—Freight gross ton-miles for the first half of 1944, the statement pointed out, amounted to 883 millions, an increase of five per cent over the first half of 1943, 19 per cent over 1942 and 106 per cent over 1939. The carloading total for the year's first 32 weeks was given as 26,303,164 cars as compared with 25,280,011 in the same 1943 period.

Colonel Johnson's prediction that the direct military demands for transportation may become more exacting is based upon his expectation that "the broadening out of the invasion from Normandy and Mediterranean beachheads to the roads to Paris and the Rhine will call for more rapid expenditure of ammunition and fuel, increased destruction of equipment, and more need for haste in rushing supplies to the front."

"Even the sudden collapse of Germany," he added, "would not necessarily bring relief to our railroads, as it would mean the turning of the tide of rail transportation toward the Pacific, instead of the Atlantic, with the consequent longer hauls from the production centers of the East. The launching of major operations against Japan while the European campaigns are in full swing, which is now indicated, will involve maximum traffic on both coasts."

A "Stand-by" for Other Carriers—In addition to the military load and the increased production of farm products and other commodities, the statement listed the diversion of traffic from other transport agencies and lengthened hauls among other reasons for the burden placed on the railroads. With respect to the lengthened haul, the statement said that "while in the 20 pre-war years the average haul increased by only 60 miles, largely because of the taking on of short-haul business by motor trucks,

in the first two years of our participation in the war, it increased no less than 102 miles under the influence of the new direction given to traffic movement. In 1940 the average haul was 351 miles, . . . in 1943 it was 470 miles, and it has been estimated that in the first half of 1944 it jumped to 498 miles."

Labor Shortage—Colonel Johnson also called attention to the fact that the railroads "have been carrying on with very little additional equipment, and with the loss of 250,000 skilled employees to the armed services." He further pointed out that "the manpower shortage in certain supply industries also affects the carriers, through the difficulty in obtaining certain needed items of equipment." Meanwhile, the carriers "have cooperated with the Interstate Commerce Commission and the O. D. T., in carrying out the program for the maximum utilization of equipment." The O. D. T. director thinks that O. D. T. orders enjoining full loading of cars are "partly responsible" for the new high records established in recent years for the average load per car. In 1939, it was 36.8 tons; in 1943 it was 41 tons.

Previously he had referred to difficulties encountered in rounding up cars to move the record winter wheat crop; and anticipated similar conditions "when the spring wheat crop has to be moved during the coming weeks." The continued absence of congestion at the ports was attributed by Colonel Johnson to the efficient functioning of the permit system.

M. R. S. Scout Party Inspects Normandy Railroads

Shortly after D-day, six officers and four enlisted men, forming the first scout reconnaissance party of the Second Military Railway Service, made a detailed survey of Normandy's railways. M. R. S. headquarters in France reports that "despite harassment by enemy snipers and artillery, the scout party investigated the amount of damage inflicted by hostilities on the rail lines; the amount, quality and value of captured rolling stock; the repair facilities available; and the number of French railroaders available to work on army-operated lines."

The survey revealed the French to be entirely agreeable to perform such tasks, explaining that one M. R. S. officer, who one morning began work with 15 Frenchmen by the end of the second day had been able to secure ten times that number.

Former railroadmen who were members of this first scout party included: Lt. Col. F. L. King (Milw.), Sabula, Ia.; Lt. Col. W. T. Elmes (N. Y. C.), Pittsburgh, Pa.; Lt. Col. W. C. Morris (Southern), Selma, Ala.; Maj. H. P. Morgan (P. R. R.), Philadelphia; Capt. G. C. Cross (Gr. No.), Minot, N. D.; T/Sgt. H. A. Coyle (C. B. & Q.), Tremealeau, Wis.; and Pfc. M. B. Hilliard (Seaboard), Norfolk, Va.

July Set New Tonnage Record on Great Lakes

July marked the fourth consecutive month in which the combined movement of iron ore, bituminous coal, and grain, by both Canadian and United States ships on the Great Lakes, reached a new high level, according to an August 21 statement from the Office of Defense Transportation. The month's iron ore traffic amounted to 14,458,049 tons; bituminous coal, 6,917,938 tons, and grain, 51,000,000 bushels.

It is pointed out that the iron ore figure fell short of the 15,000,000-ton figure for July, 1943; but it nevertheless "met the schedule planned at the opening of the navigation season." The Great Lakes fleet carrying the three commodities now consists of 367 ships.

Distinguished Service Medal for M. R. S. General Yount

Brig. Gen. Paul F. Yount, commanding officer of the Military Railway Service, in the China-Burma-India theater of operations, whose career was sketched in some detail in the *Railway Age* of August 12, page 273, has been awarded the Distinguished Service Medal.

The War Department announced, August 15, that General Yount had received this recognition for service from October, 1942, to May, 1944, when colonel in the Engineers Corps, Persian Gulf Command. The citation follows:

"As Director and General Manager of the Military Railway Service, his leadership, his untiring and zealous efforts and his unusual ability in solving many and intricate problems which arose in dealing with British, Russian and Iranian authorities contributed greatly toward the early attainment and continued efficient operation of the railway service. Forced to operate the 684 miles of railway over extremely difficult terrain, with less than one-half of the operating and maintenance units normally considered necessary, he rapidly overcame the critical situations caused by the poor state of repair of the Iranian State Railways, the partial completion of camps and other necessary installations, and chaotic employment conditions of the Iranian natives. His accomplishments contributed greatly to the success of the Persian Gulf Command in moving supplies to the Soviet Union."

O. D. T.'s Requests for Steel Cut One-Third

Controlled materials for domestic transportation in this year's fourth quarter have been reduced by about one-third from the amounts requested by the Office of Defense Transportation, the principal factor being the anticipated sharp reductions in the allocations for rail and track accessories. O. D. T., as claimant agency for the domestic transportation industry, asked for 1,532,633 short tons of carbon steel, but has been advised by the War Production Board that its allotment will be 1,039,100 tons.

Heavy Demands by Army—The new replacement-rail request was cut from 550,000 tons to 360,000 tons and allocations for track accessories from 291,000 tons to 190,000 tons, "because of demands on rail mills for shell steel and rails for the military." This sharp reduction was forecast, as noted in the *Railway Age* of August 5, page 248, when the W. P. B. revised its third-quarter rail allocations downward from 500,000 to 400,000 tons.

The announcement of the fourth-quarter allocations said that O. D. T. had been told that "in making this decision, the W. P. B. recognized the necessity of increasing the allotment of new replacement rail and accessories as soon as war demands permit." And W. P. B. further advised that "to the extent essential military requirements and export requirements in support of the war can be satisfied with relay rail and used turnouts provided by U. S. railroads, the allotment of new rails and track accessories to the O. D. T. will be adjusted upward."

No Passenger Car Allotment—Meanwhile the carbon steel requirements for locomotives, freight cars, and marine equipment "were met," but no allotment was made for railroad passenger cars for which O. D. T. requested 6,488 tons. The 160,000 tons requested for automotive replacement parts was cut to 145,000 tons, and a 76,562-ton allotment requested for light trucks was refused.

The carbon steel allotments, it is pointed out, carry with them "proportionate amounts" of alloy steel, copper, and aluminum.

In addition, W. P. B. "has set aside an adequate reserve for railroad and local transit maintenance, repair, and operating supplies."

Another Call for Abandonment of Conventions

Another Office of Defense Transportation call for abandonment of "non-war connected meetings" was embodied in a letter sent out last week to organization executives. At the same time, the number of organizations canceling 1944 conventions "is growing rapidly," according to the O. D. T. press release of August 18, which listed 24 cancellations in addition to those previously announced.

"The necessity for further curtailment of convention travel becomes increasingly evident," the letter said. "It has been emphasized by the invasion of western Europe and the resultant increased demands upon the transportation facilities of the country. Passenger travel by rail and bus —troop movements, furlough travel, and vital war production transportation—continues to establish all-time records."

British Railways Set New Transport Records

In the month following D-day, British railways ran 17,500 special trains for troops and equipment, reports T. D. Slattery of the British Railways' headquarters in New York, representing a 33 per cent increase over the month preceding D-day, when 13,000 special trains were operated.

Mails and parcels for the troops required another 113 special trains, Mr. Slattery pointed out, and special ambulance trains made over 300 trips. Still other specials were run to move German prisoners of war.

This traffic was in addition to the movement of 3½ million loaded freight cars, the operation of 25,000 special trains carrying war workers to government factories and 4,000 coal trains from the mines to consuming areas.

GENERAL NEWS

Rail Trucking Must Be Auxiliary Service

I. C. C. so holds, even though sellers to railroad had broader rights

Railroads purchasing independent truck lines do not acquire operating rights as broad as those enjoyed by the vendors but must confine services subsequent to the purchase to those which are auxiliary or supplemental to railroad operations. The Interstate Commerce Commission, Division 5, has thus ruled in passing upon a complaint wherein nine motor common carriers alleged that the Frisco Transportation Company, subsidiary of the St. Louis-San Francisco, has been conducting unlawful trucking operations.

Must Be Supplemental—In holding that most of the operations complained of were "unauthorized," the commission relied upon a general condition, attached to its orders authorizing Frisco acquisitions, which stipulates that the authority granted was subject "to such further limitations or restrictions as the commission might later find it necessary to impose in order to insure that the service would be auxiliary or supplemental to the train service of the railway and would not unduly restrain competition."

The decision found that no order was necessary in the proceeding (No. MC-C-293); but it reopens various proceedings in which certificates were issued to the Transportation Company, "for the purpose of determining what, if any, conditions or restrictions should be imposed in the certificates to remove all doubt about the character of operations which that company was authorized to acquire and in which it is authorized to engage." Heretofore, there have been no specific restrictions of the so-called "prior-or-subsequent-rail-haul" or "key-point" variety in either the orders authorizing the purchases, or in subsequent orders issued in some of the cases to grant operating authority to the Transportation Company, as successor in interest to vendors.

Benefit to Public Not Controlling—The complainants alleged that the Transportation Company, in collaboration with the railway, was performing a direct motor carrier service, i.e., it was "transporting traffic over its lines, and jointly with other carriers, without either a prior or subsequent rail haul, and on bills of lading bearing its name rather than that of the railway, in contravention of the conditions under which it was authorized to acquire the operating rights." The railroad and its affiliate, as the report put it, did not refute the allegation, but devoted their evidence "principally to showing the beneficial results of such direct motor service." Moreover, the defendants claimed that the commission has never prescribed any limitations upon the character of the service to be performed by rail-owned motor carriers in operations acquired by purchase.

The commission found it unnecessary to consider the evidence regarding the beneficial results of the Frisco operations, because the question was what services the railroad subsidiary was authorized to perform under the certificates involved. It cited *Pennsylvania Truck Lines, Inc.-Control-Barker M. Frt., 1 M. C. C. 101 and 5 M. C. C. 9 and 49* to reject the contention that the "auxiliary-and-supplemental-to-rail-service" rule does not affect certificates acquired by purchase.

Previously the commission had discussed in turn the certificates covering the routes over which the assailed operations were being conducted. Slightly over 1,900 route miles were involved; but the commission pointed out that some 760 miles purchased by Frisco from Reddish Truck Service and 330 miles acquired from Ozark Truck Lines, Inc., were covered by certificates which did not have the general condition upon which it was relying, i.e., the reservation of the right to impose conditions and limitations to insure that the operations remained auxiliary and supplemental to rail service.

Routes Involved—Thus it confined the reopenings to proceedings wherein certificates have been issued covering routes between Joplin, Mo., and Miami, Okla.; Joplin and Carthage, Mo.; Paris, Tex., and Hugo, Okla.; Walnut Ridge, Ark., and Memphis, Tenn.; Blytheville, Ark., and Turrell; and Lake City and Blytheville.

Chairman Patterson, dissenting-in-part, did not agree with the majority finding that the defendants have been conducting any operations in violation of their certificates. He thinks restrictions should be imposed, however, and thus agrees with the action reopening the cases, "so far as it goes." In the latter connection Mr. Patterson would look into the matter of the need for restrictions on Frisco's entire highway operation.

July Operating Revenues Exceed July, 1943, by 0.7 Per Cent

From preliminary reports of Class I railroads representing 80.8 per cent of total operating revenues, the Association of American Railroads has estimated that the July gross totaled $643,943,620, an increase of 0.7 per cent over July, 1943's $639,533,407. Estimated July freight revenues were $471,286,673, compared with $470,483,803, an increase of 0.2 per cent. Estimated passenger revenues were $129,872,538, compared with $126,205,964, an increase of 2.9 per cent.

Calls for Three New Transport Agencies

Senator Hill would carry out recent recommendations of study board

Proposed legislation to create three new permanent federal transportation agencies, thus carrying out the recent recommendations of the Board of Investigation and Research has been introduced in the Senate by Senator Hill, Democrat of Alabama. The B. I. R. recommendations were made in what it called its "preliminary report" on the "Relative Economy and Fitness of the Carriers," which was reviewed in the *Railway Age* of May 27, page 1029.

The Hill bill, S.2085, was introduced on April 18, the same day on which B. I. R. Member C. E. Childe had earlier advocated such legislation in the course of his presentation before a Senate interstate commerce subcommittee which was considering the House-approved bill for repeal of remaining provisions of the land-grant-rate law.

Bureaucracy in Triplicate—Like the B. I. R. report, S.2085 calls for a "Federal Transportation Authority," an "Office of Public Transportation Counsel," and a "National Transportation Advisory Committee." Also, the B. I. R. recommendations for amendments to the Interstate Commerce Act's declaration of national transportation policy are embodied in the bill. B. I. R. is now scheduled to go out of existence on the 18th of next month; but, as pointed out in the May 27 issue's review of its report, it would pretty well meet the specifications set up for the proposed transportation authority, if it were transformed into a permanent body.

The authority would consist of three members, appointed by the President for terms of six years (after the staggering of terms of original appointees). Their salaries would be $10,000 per year, and the railroads would be permitted to provide them and members of their staff free transportation, "while traveling on official business." It would be the authority's job to "promote the development, improvement, maintenance, and operation of a transportation system best suited to the national welfare, and in conformity with the national transportation policy."

Permanent Jobs for Probers—More specifically, the authority would: (1) Conduct continuing investigations with respect to the transportation system and the transportation needs of the nation, the economy and fitness of carriers, and the facilities which should be provided and the measures

(Continued on page 356)

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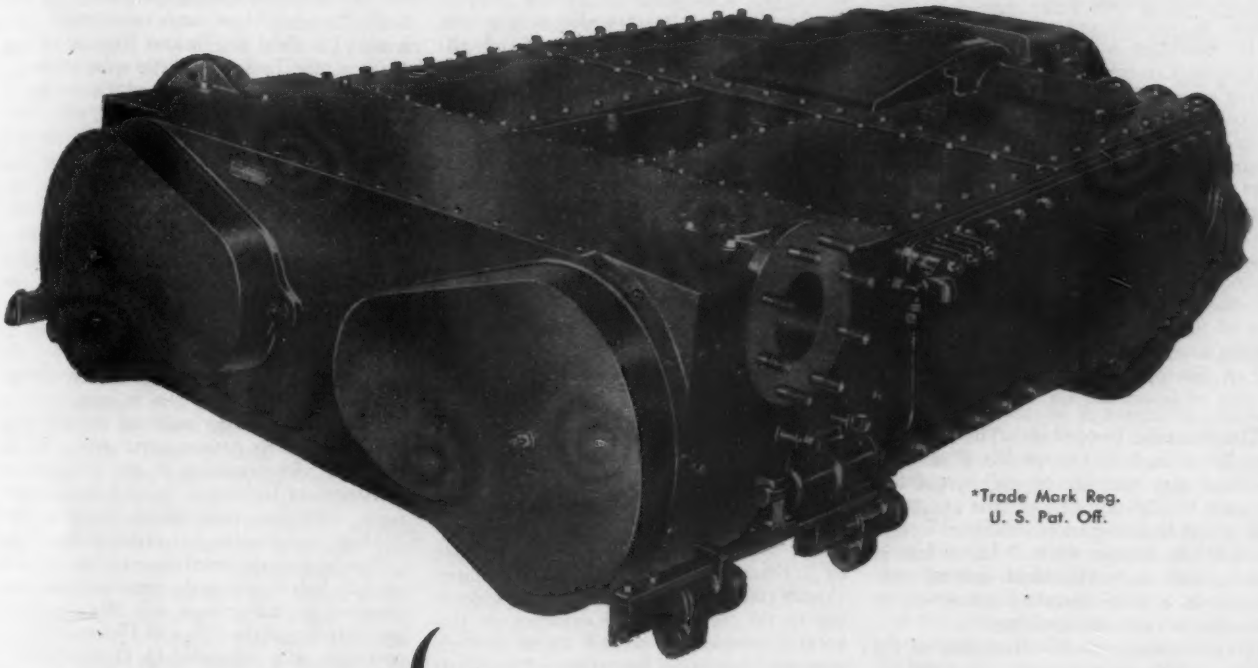
new TYPE "E" BOOSTER*



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Wouldn't Let Rails Compete with Boats

Must be ready to assume load when boats don't want it but not otherwise

Principally because the proposed adjustment would have "such a seriously detrimental effect on the business of the boat lines as to constitute a real threat to their ability to resume operations," Examiner G. H. Mattingly would have the Interstate Commerce Commission order the cancelation of suspended railroad tariffs publishing all-commodity rates from New York, Philadelphia, Pa., and Baltimore, Md., to Chattanooga, Tenn., and Birmingham, Ala., and from and to intermediate points. Mr. Mattingly would then follow through to strike down also other schedules proposing "merely as a competitive measure" to establish on all commodities now taking higher rates an any-quantity basis approximating 65 per cent of first class from New York, Philadelphia, and Baltimore to points on the Central of Georgia over water-and-rail routes by way of Savannah, Ga.

The Specific Proposals—The proposed report is in I. & S. Docket No. 5283. The all-commodity rates would range from 48.6 per cent to 53.6 per cent of first class, but they would be subject to a minimum weight of 30,000 lb. in cars 40 ft. 7 in. or less in length, with each individual carload considered as a unit—so-called follow-lot or multiple-car rules not applying.

Before getting into his discussion of the affect on the coastwise water lines, the examiner recalled that proposals similar to those involved in the present proceeding were considered and found not justified by Division 3 in *All Freight From Eastern Ports to the South*, 245 I. C. C. 207, which conclusion was affirmed by the commission in its April 13, 1942 report on reconsideration. (See *Railway Age* of May 2, 1943, page 869). Mr. Mattingly then went on to quote from Division 4's report in *Cady Lumber Corp. v. Apache Ry. Co.*, 155 I. C. C. 56, a pronouncement to the effect that when the commission has reached a conclusion regarding a certain rate it will adhere to that conclusion in subsequent proceedings regarding the same rate, "unless some new facts are brought to our attention, conditions are shown to have undergone a material change, or we proceeded on a misconception."

The railroads defended the all-commodity-rate proposal as a set-up which would meet the needs of certain shippers of varied commodities, and they also mentioned the fact that they might attract business from the motor carriers. Competition with coastwise steamship lines "is ignored on account of the inactive status of those lines at the present time," said the proposed report.

Would Defend Boats from Competition—The examiner, however, thought that the presence of the boat lines was "the principal distinguishing feature of this proceeding."

He pointed out that they expect to resume operations as soon as boats are available, and that southbound l.c.l. traffic has always constituted a "vital part" of their business. Rail-water rates of the past have been 10 cents under all-rail rates between New York and Atlanta, and the examiner calculated that if the all-commodity rates were established the difference would be 84 cents against the water-and-rail routes on first-class traffic and smaller amounts on second and third class. He was unimpressed with the railroad offer to join the boat lines in all-commodity rates on the basis of the usual differentials, saying that such rates would be "a meaningless gesture because they would not attract traffic to the boat lines in competition with the all-rail all-commodity rates."

The railroads urged that their rates "may not be declared unlawful merely because they would result in lessening the profits of the boat lines," and that their rates "may not be regulated for the purpose of dividing traffic between them and their competitors." Mr. Mattingly conceded that "no fault" could be found with these principles "in the abstract"; but he insisted that they were not controlling in the present case.

Railroads Must "Stand By," Not Compete—"We have here," he went on, "a situation where the rail carriers are proposing a basis of rates which will be of benefit to themselves, to the freight forwarders, and to certain large shippers or combination of shippers who can ship traffic in mixed carloads, but which will be of little or no financial value to the rank and file of the shipping public. These rates are of a character with which the boat lines cannot compete in kind, and which, according to the weight of the evidence on this record, constitute a serious threat to their continued successful operations. These boat lines serving ports along the Atlantic seaboard are a vital part of the country's merchant marine and furnish an important and valuable transportation service.

"In the Merchant Marine Act of 1936 the Congress declared it to be the policy of the United States to foster and encourage the development and maintenance of a strong, adequate and efficient merchant marine; and the national transportation policy, as laid down in the Transportation Act of 1940, is directed to developing, coordinating and preserving a national transportation system by water, highway and rail, free from unfair or destructive competitive practices. A rate proposal such as that here considered, which goes beyond the bounds of normal competitive rivalry, which seems destined to bring on a rate war, and which threatens extinction of important units in the water transportation of the country, is contrary to these principles."

The examiner also asserted that the "general public interest, insofar as it was evidenced by representatives of the shipping public, is wholly opposed to the proposed rates."

He had previously pointed out that "no actual shipper or receiver of freight appeared in support of the proposed rates." Opposition, in addition to that of the boat lines, came from the Boston Port Authority, the Port of New York Authority, "numerous commercial and industrial organizations in New England," the Baltimore Association of Commerce, the Central of Georgia, and the motor carriers.

Concludes Hearing on Land-Grant Repealer

Senate subcommittee gets the views of transport study board members

Public hearings in connection with a Senate interstate commerce subcommittee's consideration of the House-approved Boren bill for repeal of remaining provisions of the land-grant-rate law were concluded last week. The final sessions on August 18 and 19 were the first which the subcommittee, headed by Senator McFarland, Democrat of Arizona, had held since June 14, when the chairman abandoned hope of having the bill considered by the full committee and reported to the Senate before Congress recessed, as it did the following week, for the period of the national political conventions.

Some New Deal Officials Object—Presentations at last week's sessions were made by members of the Board of Investigation and Research—Chairman Robert E. Webb, and C. E. Childe; and by W. G. Bohnstengel, General Accounting Office senior rate examiner, who is employed on the work of auditing railroad freight bills rendered to the government. Also, R. V. Fletcher, vice-president of the Association of American Railroads, made a brief statement, supplying data which Senator McFarland had requested at previous hearings.

The chairman inserted into the record various letters which the subcommittee had received, including those of J. Monroe Johnson, director of the Office of Defense Transportation, who reiterated O. D. T.'s recommendations in favor of repeal; Secretary of the Navy Forrestal, who took no position on repeal, saying it was a policy matter for Congress to determine, but who pointed out that elimination of land-grant deductions would increase the Navy's freight bill by from $80,000,000 to $90,000,000 a year; Secretary of Commerce Jones, who said he would favor repeal in normal times but cited the prospective increase in government shipping costs and recommended that, if the bill is enacted, the effective date of repeal be fixed at the end of the war; and Harold D. Smith, director of the Bureau of the Budget, who cited testimony to the effect that repeal would increase government freight bills by some $20,000,000 a month, and advised that enactment of the bill should not be considered "in accord with the program of the President."

Study Board in Qualified Support—B. I. R. Chairman Webb read a prepared statement which highlighted the report submitted by the Board to the House committee, as noted in the *Railway Age* of May 25, page 605. Mr. Webb subscribed to this report, which was prepared under the supervision of Burton N. Behling, as one of the studies of public aids to transport agencies. It recommended repeal upon condition that the railroads return to the government the granted lands still in their possession; or, in the alternative, that the effective date of repeal be postponed until the value of such lands is recovered again in further deductions. The report had already found that the railroads have returned in deductions

more than the value of all the granted lands.

Mr. Childe, as he put it, favored repeal "without strings attached to it"; but it soon developed that he wanted the removal of land-grant rates followed by a general investigation of the resulting rates on government traffic, with reparations awarded, for the period of the investigation, for those charges which were eventually found unreasonable. Mr. Childe made his appearance an occasion for expounding his views on "discriminatory" rates, and he also got in plugs for the proposed permanent "Federal Transportation Authority," which B. I. R. recommended recently in what it called its "preliminary report" on the "Relative Economy and Fitness of the Carriers." As noted elsewhere in this issue, Mr. Childe's testimony came on the same day that a bill to carry out the B. I. R. recommendations was introduced in the Senate by Senator Hill, Democrat of Alabama.

Childe Insistent on His Own Type of Inquiry—Mr. Childe led up to his call for the new agency in his replies to questions from Senator McFarland. The Senator asked how much time would be required for the proposed rate investigations, and the B. I. R. member told him that the time would depend "on how it is done." He added that if "some disinterested government agency" could present "the facts" to the I. C. C., the latter should reach a decision within a year.

The chairman said he wanted to see the railroads do some post-war planning, adding that uncertainty as to the outcome of the investigation suggested by Mr. Childe might hamper such planning. And Judge Fletcher broke in to bring out the fact that the I. C. C. would now entertain a complaint by the government or any other shipper, alleging that their rates were unreasonable. But Mr. Childe insisted that the government agencies concerned are not set up to make the necessary investigations. Moreover, he thinks his proposed investigation should be made whether land-grant rates are repealed or not.

The bill, as approved by the House, contains a provision calling the I. C. C.'s attention to repeal to the end that increased revenues received by the carriers will be reflected in "appropriate readjustments" in rates. But Mr. Childe would make this language more specific, and call for an investigation of post-repeal rates. He has looked over the 88 government agencies now concerned in one way or another with transportation, coming to the conclusion that they could not do the job he had in mind. But if the Federal Transportation Authority recommended by B. I. R. were created, it would be "qualified." Also, the authority could assist "in planning the post-war transportation plant—rail, highway, and water."

Shipstead Raps I. C. C.—In supporting his recommendation for the rate investigation, Mr. Childe gave various specific examples of rates on war supplies, especially ordnance, small arms, and ammunition, which he said were too high even after the land-grant deductions were made. Meanwhile, he conceded that the application of land-grant rates to other government traffic, such as coal, make the resultant rates too low. At one point in this discussion, the B. I. R. member said that the War Department's "very competent" transportation department was paying more attention to rates; and he understands that some complaints "are in contemplation." Later on, A. F. Cleveland, vice-president of the A. A. R. pointed out that the railroads have made a section 22 quotation of 65 per cent of first class on much of the war traffic which Mr. Childe was talking about. Meanwhile, the government always has the commercial rate, less land-grant, if that is lower.

Also, Mr. Childe had a chart dealing with his favorite subject—the differing territorial levels of class rates. When Senator Shipstead, Republican of Minnesota, read the chart as showing that "we didn't get much benefit from the I. C. C.," Mr. Childe said he thought that if the regulatory body were given "time and the facts" it would adjust "inequalities." He added that the commission has already ironed out irregularities within each territory, while the pending No. 28300 proceeding is the first in which the territorial relationships have been involved.

Senior Rate Examiner Bohnstengel did not represent the General Accounting Office; he appeared in opposition to repeal "as a taxpayer in the interest of the people of my own community and in my own interest." He said he would favor repeal, however, if rates on government traffic were adjusted downward to reflect the over-all average of land-grant deductions, which he puts at 15 per cent. He also thinks that much money could be saved by the government if it were to establish a "Central Traffic Bureau" to handle all traffic matters.

Figures on Granted Land Still Held—The data presented by Judge Fletcher covered such information as was obtainable regarding the income received from granted lands still held and taxes paid thereon. The figures related to lands held by the Southern Pacific, the Northern Pacific, and the Atchison, Topeka & Santa Fe. The totals showed 16,092,263 acres of land valued at $34,136,345, the latter being generally based on the assessed values.

* * *

Poster No. 253, September Installment of the "All the Year-Every Year Safety Program," Which Is Now Being Distributed by the Committee on Education, Safety Section, Association of American Railroads.

The breakdown of the 1943 figures by states shows that the Arizona lands totaled 2,272,450 acres on which there was a gross income of $176,694 and taxes of $190,020; California, 3,508,600 acres, gross income, $2,180,851, taxes, $1,171,480; Nevada, 3,411,464 acres, gross income, $480,202, taxes, $680,658; New Mexico, 1,380,474 acres, gross income, $278,405, taxes, $163,774; Utah, 553,836 acres, gross income, $39,601, taxes, $23,613.

Gross income figures were not available for other states where acreage and taxes were reported as follows: Idaho, 402,412 acres, taxes, $100,588; Minnesota, 10,139 acres, taxes, $14,063; Montana, 3,664,478 acres, taxes, $960,436; North Dakota, 172,096 acres, taxes, $56,274; Oregon, 36,579 acres, taxes, $11,087; Washington, 654,503 acres, taxes, $400,612; Wisconsin, 649 acres, taxes, $327; Wyoming, 24,583 acres, taxes, $3,806.

Bill Proposes Missouri Valley Authority on T. V. A. Model

Establishment of a federal government corporation to be known as the Missouri Valley Authority is proposed in S. 2089 introduced in the Senate last week by Senator Murray, Democrat of Montana. The job of the authority would be "to provide for unified water control and resource development on the Missouri river and surrounding region in the interest of the control and prevention of floods, the promotion of navigation and reclamation of the public lands, the strengthening of the national defense. . . ."

Senator Murray gave the bill a send-off in a statement wherein he complained of the "piecemeal development" of the Missouri, and referred to the "conflict between two existing plans for developing the river and its basin." He identified the conflicting plans as that of the Army engineers, which is aimed at providing flood control and navigation; and that of the Bureau of Reclamation, which is interested in irrigation reservoirs.

Another bill to create a Missouri Valley Authority was introduced later by Senator Gillette, Democrat of Iowa. It is S. 2100.

Burlington Affiliate Modifies Air Service Application

The Burlington Transportation Company, subsidiary of the Chicago, Burlington & Quincy, has filed with the Civil Aeronautics Board an amendment to its year-old application for authority to operate helicopter or similar aircraft services. The amendment more than halves the total route mileage sought to be served, seeking rights on nine routes totaling 3,160 miles as compared with 19 routes totaling 6,380 miles sought in the original application which was noted in the *Railway Age* of July 3, 1943, page 30.

The principal change is the elimination of routes to the Pacific Coast. Now sought are rights in the area between Chicago, Kansas City, Mo., Denver, Colo., and Deadwood, S. Dak., serving also, among other

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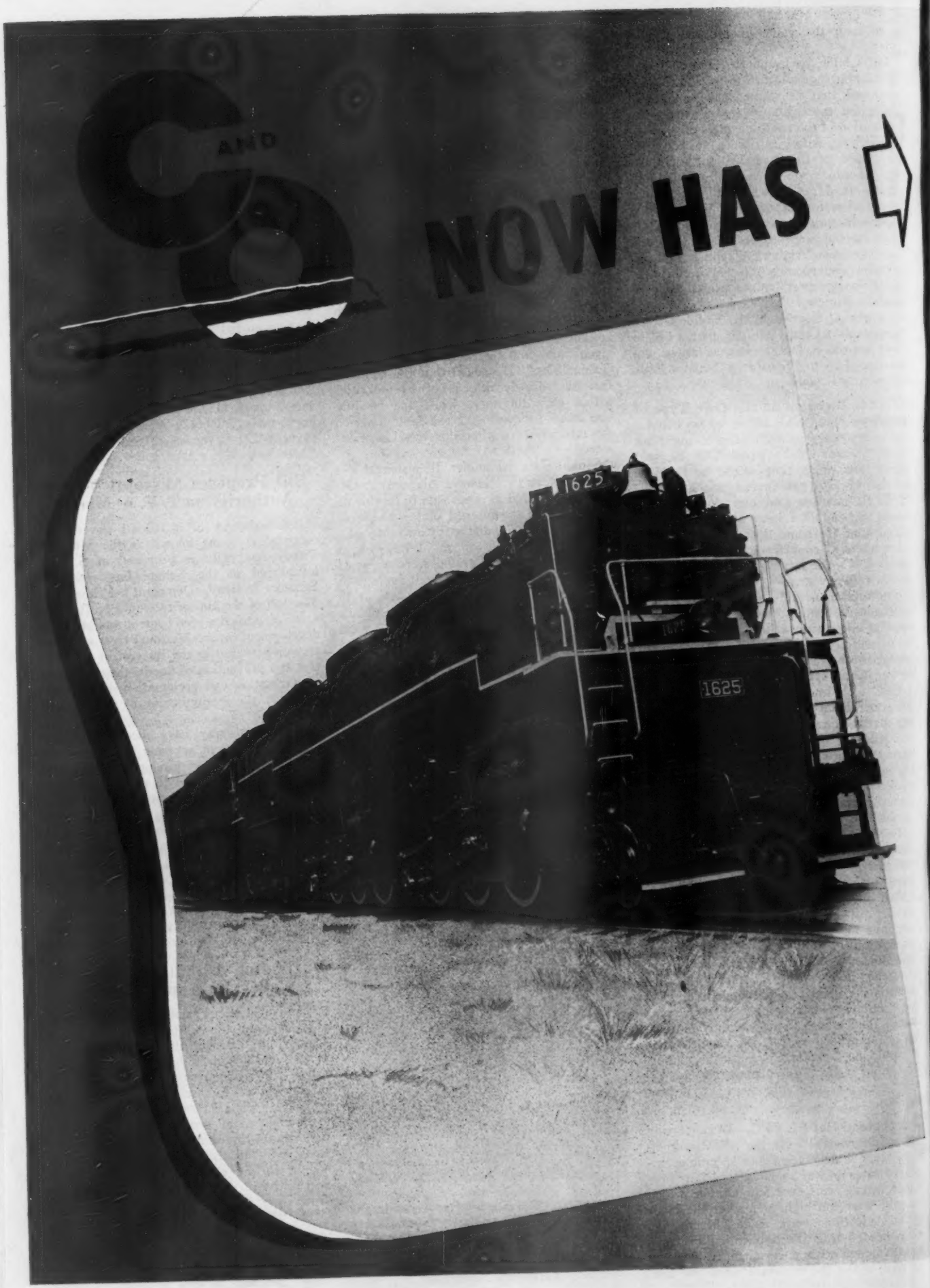
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The C&O hauls thousands of tons of coal daily from mines high in the Alleghenies, where the road reaches an elevation of 2,072 feet above sea level and grades are in excess of 1.14 per cent, with curves of 6 degrees.

For such hauls the Chesapeake & Ohio uses the most powerful four-cylinder, six-coupled engines ever built, the "Allegheny Type" Limas.

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points, Des Moines, Iowa, Omaha, Nebr., and St. Louis, Mo. The original application sought to serve these points, but would also have extended the service to Los Angeles, Calif., and San Francisco; and the Montana terminus would have been Billings instead of Deadwood.

Handling Loaded and Empty Leaky Tank Cars

The third paragraph of Sec. (b), Interchange Rule 2, provides that any leaky tank car, regardless of commodity carried, shall be stenciled on both sides "Leaky tank. Do not load until repaired," and the owner shall be immediately advised by wire for disposition. According to a circular letter, issued under date of August 10 by the A. A. R. Mechanical Division, some railroads have incorrectly interpreted this provision as applicable to empty tank cars only.

In cases where loaded tank cars are permitted to go forward to destination without repairs or transfer when only slight leaks are involved, the circular states that the above stenciling should be applied and the handling line must notify the car owner by wire, giving the location of the leak, so that the owner may make provision to have repairs made before the car is again loaded. A circular letter dated March 2, 1943, gives details of what constitutes a leaky condition of tank cars requiring repairs before cars are again loaded. It is also suggested that all concerned again review Par. 502.106 of General Order O. D. T.-7, as amended, covering maintenance of tank cars and be governed accordingly, in order to avoid as much delay to tank cars as possible.

Votes to Report Bill Proposing I. C. Act Amendments

The House committee on interstate and foreign commerce on August 23 voted to report favorably the Senate-approved bill (S.1473) to amend the Interstate Commerce Act in various respects as suggested by the Interstate Commerce Commission.

The proposed amendments would give the commission authority to prescribe rules for the extension of credit by express companies, and give it the same emergency powers over water carriers that it now has over railroads and motor carriers. Other provisions relate to the service of notice in commission proceedings, and to the commission's authority with respect to examining accounts of companies furnishing railroads with cars or protective service to perishable freight against heat or cold.

Will Assist A. A. R. on Permits for Cars Going to Mexico

"In order to restore the balance of freight car interchange between American railroads and those of Mexico," Raul de Mariay Campos, of Mexico City, assistant traffic manager of the National of Mexico, has been delegated as the Washington, D. C., representative of the railroads of his country, John J. Pelley, president of the Association of American Railroads, announced on August 22.

Mr. Campos, who has already assumed his new position, "will cooperate with the A. A. R. in setting up the machinery to handle issuance of permits covering shipments from the United States to Mexico," Mr. Pelley said. The purpose of this action "is to maintain a flow of traffic that will meet the economic needs of Mexico, and at the same time to keep the number of American-owned cars in that country to a minimum."

At the present time, Mr. Pelley pointed out, American cars are going into Mexico under the permit system, which is controlled by the Car Service Division. Mr. Campos will keep the A. A. R. informed as to which permits should be issued, basing his decisions on his country's requirements. Under present arrangements, it is estimated that freight shipments from the United States to Mexico will total about 100 loads daily, or an average of 2,600 loads a month.

Anti-Trust Charges Called "Witch Hunt"

Recent attacks by Attorney General Biddle and Assistant Attorney General Berge on railway rate-making procedures forecast "another witch hunt among rail and truck bureaus," says the August 21 issue of "Business Action," published by the Chamber of Commerce of the United States. The article states that the activities of the Department of Justice seem to be based on "assumptions as to inequities in certain freight classifications and rate adjustments now under thorough investigation by the I. C. C."

It adds that instead of awaiting decisions of the I. C. C., Justice officials "are apparently prejudging the case and using their own ideas about it to support their attack on the rate bureaus." Previously, it had been pointed out that nothing that is now being said about rate-bureau procedures is "news," for such procedures have been "long established" and "well known to everyone interested in transportation, and recognized by the regulatory authorities."

B. & O. Invites Food Processor Interest in "Bumper Belt"

"That vast area of land miles wide on either side of the B. & O. and stretching the full 11,000 miles of the system" is described and illustrated in a booklet called "The Bumper Belt," which is now being circulated by the agricultural development department of the Baltimore & Ohio.

R. B. White, president, in a brief message to the reader at the outset of the pamphlet states that the railroad's interest in problems of the farm is not prompted by any "philanthropic motive, but purely because we believe it is good business to take an active interest in what the territory we serve produces."

It is explained a program of agricultural improvement for the territory served by the B. & O. has been adopted, taking the "soil doctors" direct to thousands of farmers in Indiana, Illinois, Ohio, West Virginia and Maryland, making tests and aiding them in solving their soil fertility problems.

There is discussed the lamb improvement program, another step in the "good soils and good sires policy." Cows, pigs, poultry as well as soybeans each are given a chapter, and the entire booklet is smartly and effectively illustrated.

Food processors interested in the services of the railroad's agricultural development department are invited to consult this branch because of its "familiarity with the changing agricultural picture in every portion of the territory served."

Freight Car Loading

Loadings of revenue freight for the week ended August 19 totaled 887,446 cars, the Association of American Railroads announced on August 24. This was a decrease of 8,726 cars or 1.0 per cent below the preceding week, a decrease of 3,894 cars or 0.4 per cent below the corresponding week last year, and an increase of 18,012 cars or 2.1 per cent above the comparable 1942 week.

Loading of revenue freight for the week ended August 12 totaled 896,172 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, August 12

District	1944	1943	1942
Eastern	161,610	169,520	161,324
Allegheny	196,775	193,992	184,959
Pocahontas	58,143	56,690	56,433
Southern	121,370	117,328	119,048
Northwestern ..	139,812	144,922	147,519
Central Western	142,563	132,293	127,568
Southwestern ..	75,899	72,419	71,994
Total Western Districts	358,274	349,634	347,081
Total All Roads	896,172	887,164	868,845
Commodities			
Grain and grain products	51,184	57,398	44,684
Live stock	15,966	14,988	13,479
Coal	180,274	177,026	167,045
Coke	14,184	14,385	13,693
Forest products.	50,097	48,699	54,597
Ore	80,437	88,670	88,424
Merchandise l.c.l.	106,440	100,790	89,995
Miscellaneous ..	397,590	385,208	396,928
August 12	896,172	887,164	868,845
August 5	890,458	872,133	850,221
July 29	910,533	885,525	863,576
July 22	903,034	883,838	855,515
July 15	904,804	877,335	857,146
Cumulative Total, 33 Weeks ..	27,199,336	26,167,175	26,967,602

In Canada.—Carloadings for the week ended August 12 totaled 67,847 as compared with 69,828 for the previous week and 71,159 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Total for Canada	Total Cars Loaded	Total Cars Rec'd from Connections
Aug. 12, 1944 ..	67,847	36,905
Aug. 5, 1944	69,828	37,499
July 29, 1944	71,109	27,509
Aug. 14, 1943 ..	71,159	41,946
Cumulative Totals for Canada		
Aug. 12, 1944 ..	2,214,492	1,235,053
Aug. 14, 1943 ..	2,057,831	1,272,820
Aug. 15, 1942 ..	2,042,816	1,064,722

Roadmasters to Hold One-Day Executive Meeting

The Roadmasters' Association has cancelled its plans for an annual meeting in Chicago on September 19-21, but, in order to receive and pass upon the technical reports of its committees for the current year and to carry forward the work of the year ahead, it will hold a one-day business meeting of its executive committee in Chicago, at the Hotel Stevens, on September

News Department continued on next left-hand page

Saving Coal

Photograph Courtesy of Chesapeake & Ohio Railway Co.

also saves TRANSPORTATION

Fuel wastage is a two-fold loss; the fuel itself and the transportation necessary to haul it. Because of the strategic importance of fuel to the war program every effort must be made to conserve this vital material.

The fuel economy of Security Sectional Arches has been thoroughly proved in over 35 years of service on American railroads. But only a complete Arch can produce maximum fuel savings.

You need a full Arch for full fuel economy.

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20. Invitations to attend this meeting will be extended to the chairmen and members of all technical committees and to other members and interested railroad men in and about Chicago.

The reports to be presented are as follows: Operation and Maintenance of Work Equipment; Effect of Traffic on the Service Life of Ties and Methods of Protection; Prevention of Accidents to Trackmen; Mechanization of Section Gangs; What the Trackman Can Do to Speed Up Train Operation; and Recruiting Men in the Face of a Labor Shortage.

A. A. R. Announces 1944 Edition of "Railway Accounting Rules"

First copies of the October 1, 1944, edition of the "Railway Accounting Rules" book are expected to be available sometime during September, according to an August 18 announcement from E. R. Ford, secretary of the Accounting Division, Association of American Railroads. At that time, one copy will be furnished to each member of the Division, additional copies being available "soon after October 1."

Published in its usual form, the book will contain all mandatory and recommendatory rules and forms of the Division, as amended or supplemented in accordance with the recommendations of the standing committees, and as approved by the general committee at its June 28 meeting. With the exception of certain freight and overcharge mandatory rules, which were revised, effective April 1, the amended rules and forms included in the edition will become effective October 1.

Member roads and employees may obtain additional copies of the book from the Division's Washington,, D. C., office at 50 cents per copy when ordered in quantities of 10 or more; and 75 cents when ordered in quantities of less than 10.

Pullman Mass Troop Traffic Still High

Mass troop movements in Pullman sleeping cars in the first half of 1944 were near the 1943 peak although a large portion of the nation's armed forces were abroad, according to J. M. Carry, assistant vice-president of the Pullman Company. Troops carried totaled 4,304,025 compared with 4,902,000 a year earlier.

Representation of Employees

Reports on recent elections certified by the National Mediation Board show that the Switchmen's Union of North America has been supplanted by the Brotherhood of Railroad Trainmen as the Railway Labor Act representative of yardmen employed by the Manufacturers' of St. Louis, and by the Brotherhood of Locomotive Engineers as representative of motor enginemen and/or motormen (road and yard service) employed by the Oklahoma. Meanwhile, the B. of L. E. has defeated the Brotherhood of Locomotive Firemen & Enginemen and retained the right to represent engineers employed by the Northern Pacific Terminal of Oregon.

On the Newburgh & South Shore, the Switchmen's Union has supplanted the B. of R. T. as representative of yardmen (foremen, helpers and switchtenders); and on the Monongahela Connecting the B. of R. T. beat a C. I. O. challenger, the United Steelworkers of America, and retained the right to represent yardmen (conductors, brakemen and switchtenders). Also, the B. of R. T. has supplanted the Order of Railway Conductors as representative of road brakeman employed by the Pacific Coast; but, because of a tie vote, the O. R. C. retained the right to represent the road's road conductors.

The Brotherhood of Locomotive Firemen & Enginemen has won the right to represent engineers, firemen, and hostlers employed by the Texas, Oklahoma & Eastern, and DeQueen & Eastern; while the road conductors and road brakemen of those roads have chosen the B. of R. T.

In another recent election, the American Railway Supervisors Association, Inc., was chosen by Chicago, Milwaukee, St. Paul & Pacific mechanical department foremen or supervisors of mechanics; while a mediator's investigation resulted in the board's determination that Brotherhood of Maintenance of Way Employees' representation of Erie maintenance of way workers should be extended to include employees in the Department of Structures.

South Australian Rys. Engage in Defense Activities

Industrial expansion, restrictions in interstate shipping, gasoline rationing and defense activities have accounted for the continued growth in their passenger traffic, and a substantial increase in general merchandise traffic, the South Australian Railways recently reported in a statement for the year ended June 30, 1943. There was a net increase of £868,568 in earnings over the previous year, the report states, with total earnings for last year having reached £5,832,475.

A large defense program was carried out during the year, the report further reveals, under the supervision of chief engineer and chief mechanical engineer, "including the construction of extensive buildings and installing machinery therein. Also the manufacture of aircraft components, machine gun carriers, and large-scale production of shells as well as lathes, tools gages, dies, etc., for use in munition establishments elsewhere." It is explained these had made heavy demands upon the railways' organization.

Average number of staff employed during the year totaled 1,757 salaried officers, and 10,179 wage-earning employees. A further 1,843 were employed on construction and special works. Now serving with the armed forces are 732 railway officers and employees.

No passenger sustained any fatal injury during the year for which the railroads could be held responsible, it was also noted.

Status of Tulsa Union Depot

Examiner Howard Hosmer has recommended in a proposed report that the Interstate Commerce Commission's Division 1 should find that the Tulsa Union Depot Company, owner of the Tulsa, Okla., union passenger station, is not a carrier but is a lessor within the meaning of those terms in section 20(8) of the Interstate Commerce Act. The proposed report is in No. 29145, the proceeding instituted by Division 1 following the Depot Company's refusal to file reports under section 20 on the ground that the section does not apply to it.

On the matter of filing reports, Mr. Hosmer would call the Depot Company an "operating company" as defined in the commission's report-filing regulations; and he would adopt the Bureau of Transport Economics and Statistics' recommendation that it be required to file reports as a switching and terminal company.

B. & B. Association to Hold One-Day Business Meeting

Instead of its usual three-day annual meeting, which was scheduled to be held in Chicago on October 17-19, the American Railway Bridge and Building Association will hold a one-day business meeting of its executive committee, the chairmen and members of all technical committees and such other members in the Chicago area who find it possible to attend, to receive and act upon the reports of the committees and to organize the work for the ensuing year. This one-day meeting will be held on October 18 at the Stevens Hotel, Chicago.

The reports to be presented are as follows: Post-War Values of War-Time Practices in Bridge, Building and Water Service Activities; Increasing the Capacity of Water Service Facilities to Meet Demands of Heavier Traffic; Keeping Work Equipment in Service; New Possibilities in Building Designs and Materials; Bridge Inspection in the Light of Current Restricted Maintenance; the Year's Developments in Labor; Recent Developments in the Treatment of Timber to Increase Its Fire Resistance; and Welding in Bridge, Building and Water Service Work.

Proposes Time Limit on Actions to Recover Motor Charges

Senator Cordon, Republican of Oregon, has introduced S. 2096 to amend Part II of the Interstate Commerce Act to provide for a limitation of two years on the time within which actions may be brought by motor carriers for the recovery of their charges.

C. N. R. Tries Radio in Yard Operation

An initial test of the two-way radio communication system made recently in the Montreal terminal area of the Canadian National has been pronounced satisfactory by engineering officers of the railroad and the Canadian Marconi Company. This was the first time that radio communication had been used in Canada for the operation of trains. During a series of further tests, two locomotives, a Diesel and an electric, will operate in and out of the terminal on instructions their respective enginemen receive by radio.

For the tests, 50-watt transmitters of the frequency-modulation type operating on 38.6 megacycles are being used. This system gives freedom from static and other interference, particularly where trolley wires are located. It has a possible 20-mile range but, for the time being, less than half of that range will be required by the two locomotives during the

News Department continued on next left-hand page

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In Added Boiler Hp.

In First Cost
In Maintenance
In Weight

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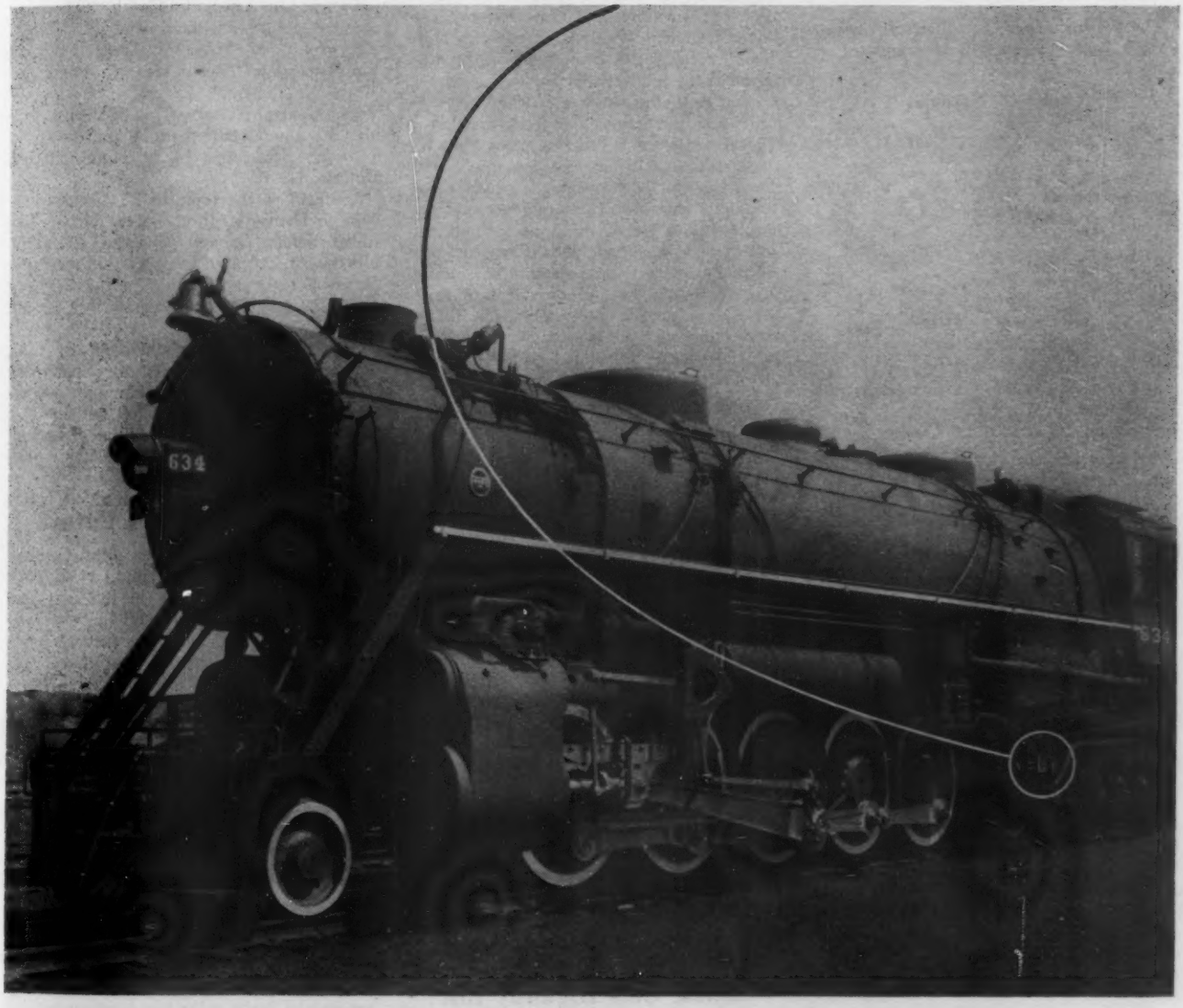
A-1673 (A-1174)



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test period. The transmitter is housed in a signal control tower, immediately north of the C. N. R. lift bridge crossing Lachine canal. On top of the lift bridge is a 20-ft. antenna, approximately 175 ft. above the ground.

Each locomotive is also equipped with a 50-watt transmitter, a receiving set, loudspeaker, microphone and antenna. For the tests, two antennas have been applied, one horizontal and the other vertical. The Department of Transport at Ottawa has issued a temporary license to the railroad for the broadcasting of instructions to trains in the Montreal area.

The tests are being conducted under the supervision of R. G. Gage and H. F. Finnemore, of the Canadian National, and S. G. Patterson and R. Desaulniers, of the Canadian Marconi Company.

June Earnings in Canada

The two principal Canadian railways reported June earnings and expenses as follows:

Canadian National

June	1944	Increase
Gross	$37,389,000	$1,871,000*
Expenses	28,954,000	938,000*
Operating Net†	$ 8,435,000	$ 933,000*
6 Months		
Gross	$213,579,000	$3,095,000
Expenses	172,596,000	7,047,000
Operating Net†	$ 40,983,000	$3,952,000*

* Decrease

Canadian Pacific

Gross	$26,656,986	$1,958,769
Expenses	22,118,529	1,841,749
Net†	$ 4,538,457	$ 117,020
6 Months		
Gross	$154,575,055	$18,343,524
Expenses	131,894,640	16,866,271
Net†	$ 22,680,415	$ 1,477,253

† Net as shown in this tabulation, for the C. N. R., is equivalent to "Net Operating Revenue" in U. S. accounting terminology, while the net shown for the C. P. R. corresponds to "Net Railway Operating Income" in U. S. terms.

Trainmen and Engineers Now Arbitrating Vacations Case

The long-drawn-out controversy in connection with the paid-vacations phase of the year-end wage settlement with the Brotherhood of Railroad Trainmen and Brotherhood of Locomotive Engineers reached the arbitration stage this week. A six-man arbitration board began its consideration of the case at Chicago on August 21.

The delay had been due to the reluctance of the two brotherhoods to turn to the National Mediation Board and Railway Labor Act procedures, as advised by President Roosevelt, when they sought to have him act as arbitrator, thus pursuing a course different from the other three operating unions, as they had when they accepted the President as arbitrator in the year-end crisis.

N. M. B. finally got into the case, however, but its mediatory efforts resulted only in the agreement to arbitrate. The arbitration board consists of six members, including two representatives of the carriers, one representative of each of the two brotherhoods, and two "neutral" members. The latter, appointed by N. M. B., are Walter C. Clephane and Frank M. Swacker, attorneys, of Washington, D. C., and New York, respectively; both are members of the National Railway Labor Panel, and have served on emergency boards of recent years. The carrier representatives are L. W. Horning, vice-president of the New York Central, and J. Y. McLean, director of labor relations of the Chicago, Rock Island & Pacific. Alvanley Johnston, grand chief engineer of the B. of L. E., represents that organization which the B. of R. T. is represented by its vice-president, W. P. Kennedy.

The dispute is a result of the interpretation of the words used by President Roosevelt when, as sole arbitrator on December 27, 1943, he said, "I determine that employees shall be entitled to a vacation of one week a year with pay at the basic hourly rate of employment," and his amplifying statement on May 17: "By the words 'one week', I meant that the employees would have a vacation of seven days. It was my intention that the employee who was granted a week's vacation should receive the compensation for that period of the job to which he was assigned."

Prior to the hearings at Chicago, the railroads and the unions had concurred upon several phases of a vacation agreement but were still of a difference of opinion as to the basis for determining compensation. The unions propose that employees be paid not less than 1/52 of the annual compensation earned during the preceding year, provided, however, that the employee shall be paid not less than the equivalent of seven basic days at the rate applicable to the service in which he is engaged at the time his vacation is scheduled to be taken or the amount that would have been earned had the employee worked during the time on vacation, whichever is greater. The railroads propose that an employee having a regular assignment be paid while on vacation the compensation he would have earned during the seven day vacation had he continued at work on his assignment, and that extra employees and furloughed employees be paid on the basis of their respective earnings in the last semi-monthly payroll period preceding the starting date of vacation during which period the employee involved worked on as many as 10 calendar days or earned pay equivalent to 10 minimum basic days—such earnings to be divided by the number of calendar days in such payroll period and the result to be multiplied by 7, the sum thus obtained to be the vacation allowance.

The vacations dispute between the railways and the three other operating unions—the order of Railway Conductors, the Brotherhood of Locomotive Firemen & Enginemen, and the Switchmen's Union of North America—was settled last May, as noted in the *Railway Age* of May 27, page 1036.

Senate Gets Highway Bill

Senator Hayden, Democrat of Arizona, is sponsor of a post-war highway bill which he reported favorably to the Senate from the committee on post offices and post roads on August 22. The bill, S. 2105, would authorize appropriations totaling $1,950,000,000 to become available at the rate of $650,000,000 a year for each of the three successive post-war years.

It also provides for the designation of a "System of Interregional Highways not exceeding 40,000 miles in total extent." Except for the larger appropriations it would authorize, the bill is similar to H. R. 4915, which is pending in the House. The House bill would authorize appropriations totaling $1,500,000,000 to become available at the rate of $500,000,000 a year for each of the first three post-war years.

Club Meetings

The Anthracite Valley Car Foremen's Association will meet October 16, at 6:30 p. m., in Wilkes-Barre, Pa.

The Car Foremen's Association of Omaha, Council Bluffs and South Omaha Interchange will next meet, September 14, at 1:30 p. m., in Burlington Depot, Omaha, Neb.

The Car Foreman's Association of Chicago will next meet September 11, at 8 p. m., in the La Salle Hotel. Scheduled speaker is L. M. Gillick, who will address the group on "General Inspection and Maintenance of Steam Heat in Passenger Train Equipment."

The Central Railway Club of Buffalo will hold its annual ladies' night and dance, at 9 p. m., September 14, at Hotel Statler, Buffalo, N. Y.

"Safety" is the topic to be discussed by George Demsey, editor, Safety News, National Safety Council, Chicago, when the Northwest Car Men's Association meets on September 6, at 8 p. m., in the Midway Club, 1931 University avenue, St. Paul, Minn.

The next meeting of the Railway Club of Pittsburgh is scheduled for September 28, at 8 p. m., in Fort Pitt Hotel.

The Western Railway Club will meet at 6 p. m., October 16, in Hotel Sherman, Chicago.

N. Y. C. Seeks Travelers' Views on Sleeping Car of Future

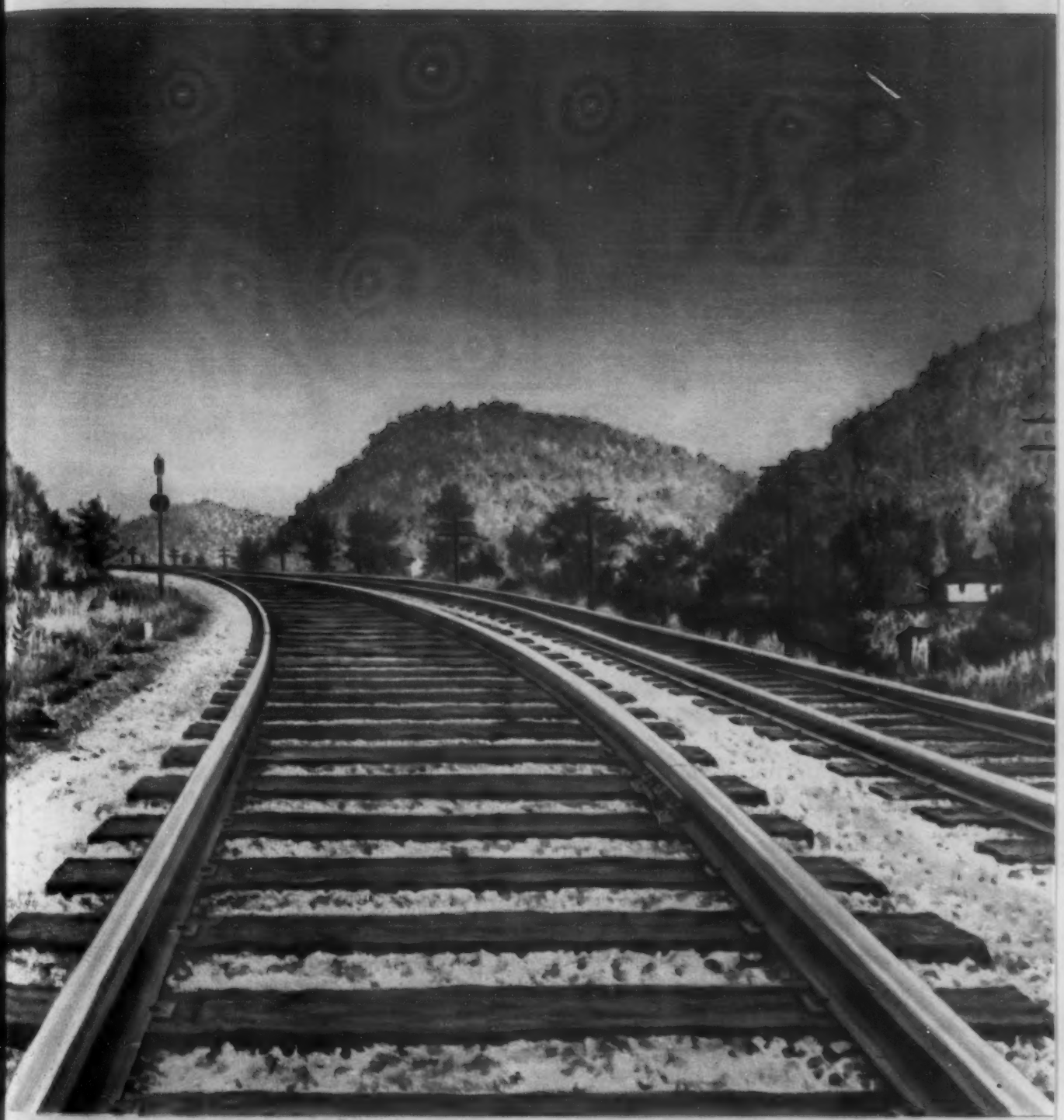
Passengers aboard the 20th Century Limited and principal overnight New York Central passenger trains in the east and midwest recently were asked to "vote" on a "sort of ballot for post-war travel," when research representatives of the railroad presented them with copies of the booklet entitled "The Sleeping Car of Tomorrow—And How You Can Help Plan It Today."

Similar to its questionnaire prepared for coach passengers several months ago, the N. Y. C.'s new survey posed 60-odd questions suggesting ideas in comfort, convenience and service now being considered by the company, requesting that these be compared with the present-day facilities.

"First let's talk about the appearance and decoration," begins the questionnaire, asking the "voter" to check his preference as to painted or stainless steel exteriors, and in the case of the former, suggesting not only a body color but preference also as to trim. Interior color schemes are the next step. Choice as to locomotive—Diesel, steam or electric—is asked. Detailed opinion of seat comfort is requested, even to the query: "How important is it to you if you cannot ride facing forward in the daytime?"

Next topic is that of sleeping accommodations. Position of the bed—lengthwise or crosswise—and questions about bedding

News Department continued on fifth right-hand page



What's around the Bend?

WHAT kind of locomotives will pull the trains of tomorrow? Steam, Diesel or electric?

The answer is: all three kinds. For modern, functional railroading demands that locomotives be designed for specific duties.

Actually, any one of the three types can be built to pull any train at any desired speed. Each has certain advantages over the other two only under certain conditions—which type is best depends on the nature of the territory to be served, the kind and amount of load to be hauled, and many other factors.

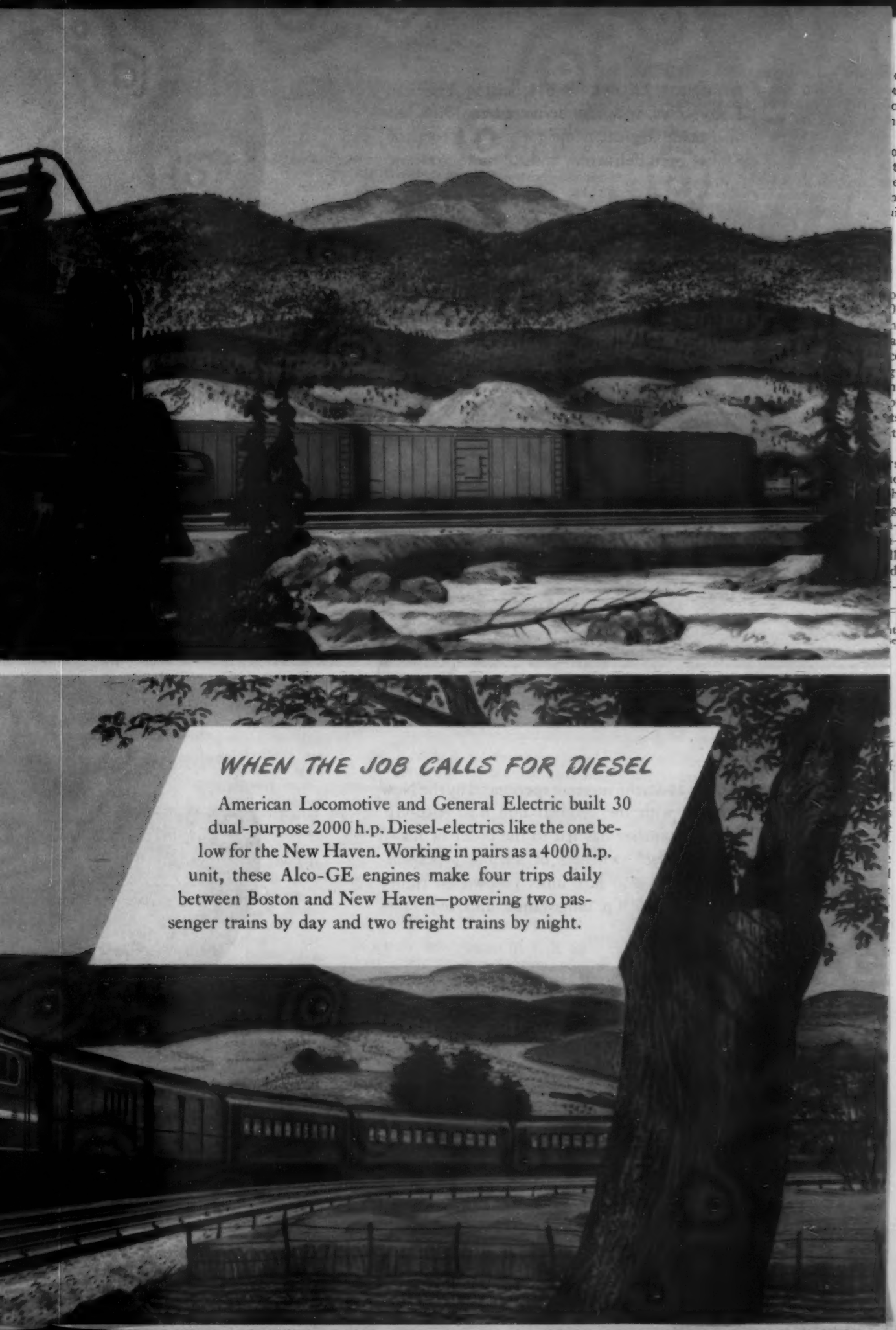
That is why American Locomotive builds all three types. A hundred years of experience has taught us the value of versatility. First we analyze a railroad's requirements, then build the locomotive that meets them best.

Today, a large percentage of America's crack passenger and freight trains are pulled by American Locomotive engines. Two such outstanding trains are pictured on the right, and on the reverse side of this folder you will see other American Locomotive engines built to meet a variety of needs.

Each American Locomotive engine shown here is unsurpassed at its particular job because each was built for that particular job.

WHEN THE JOB CALLS FOR STEAM
American Locomotive built the biggest, most powerful steam engine in the world—"Big Boy"—for Union Pacific. Designed to haul maximum tonnage and maintain schedules without helper service over the Wasatch Mountains on a ruling grade of 1.14%, "Big Boy" produces maximum power output continuously at 70 m.p.h., with a top speed of 80 m.p.h.

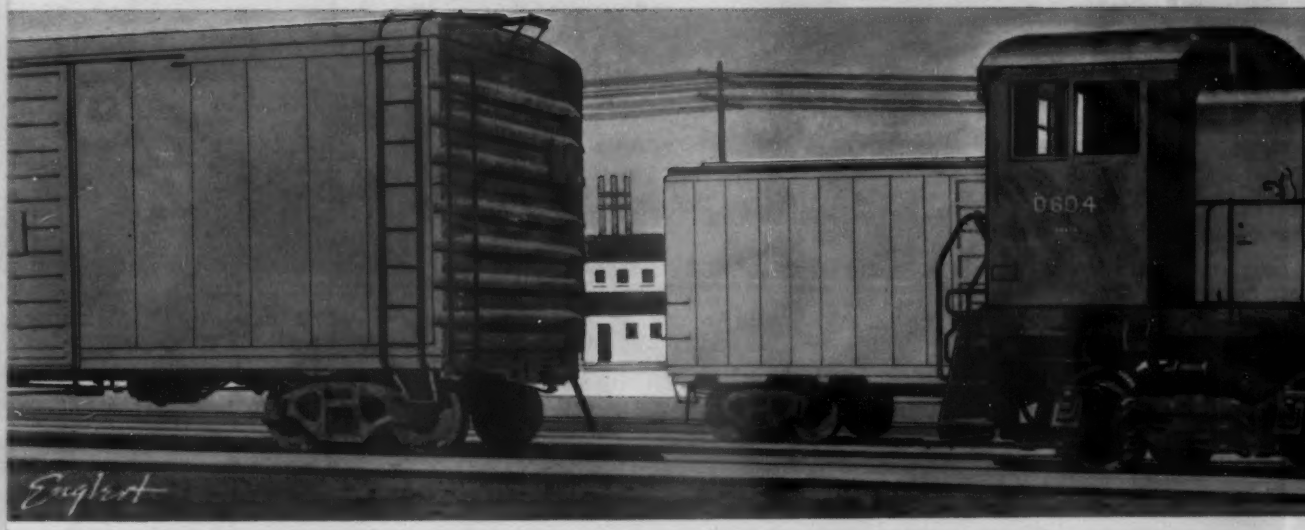
NEW HAVEN



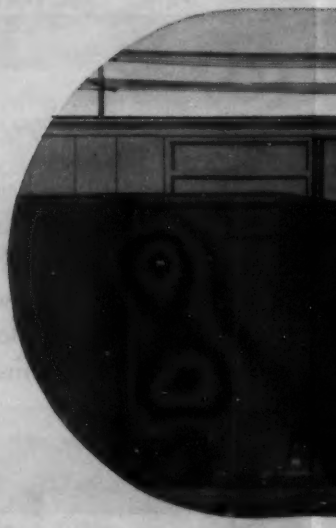
WHEN THE JOB CALLS FOR DIESEL

American Locomotive and General Electric built 30 dual-purpose 2000 h.p. Diesel-electrics like the one below for the New Haven. Working in pairs as a 4000 h.p. unit, these Alco-GE engines make four trips daily between Boston and New Haven—powering two passenger trains by day and two freight trains by night.

THE UNION PACIFIC 4-6-6-4, built by American Locomotive and first delivered in 1936, has also made a great name for itself. A total of 85 has been delivered, and 20 more are now on order.



SINCE 1931, the success experienced by the New Haven with the original 600 h.p. Alco-GE Diesel switcher has led to the order of many more Diesel switchers of various types—including 60 660 h.p. units (shown on right) and 22 1000 h.p. units (shown above).



NEW HAVEN

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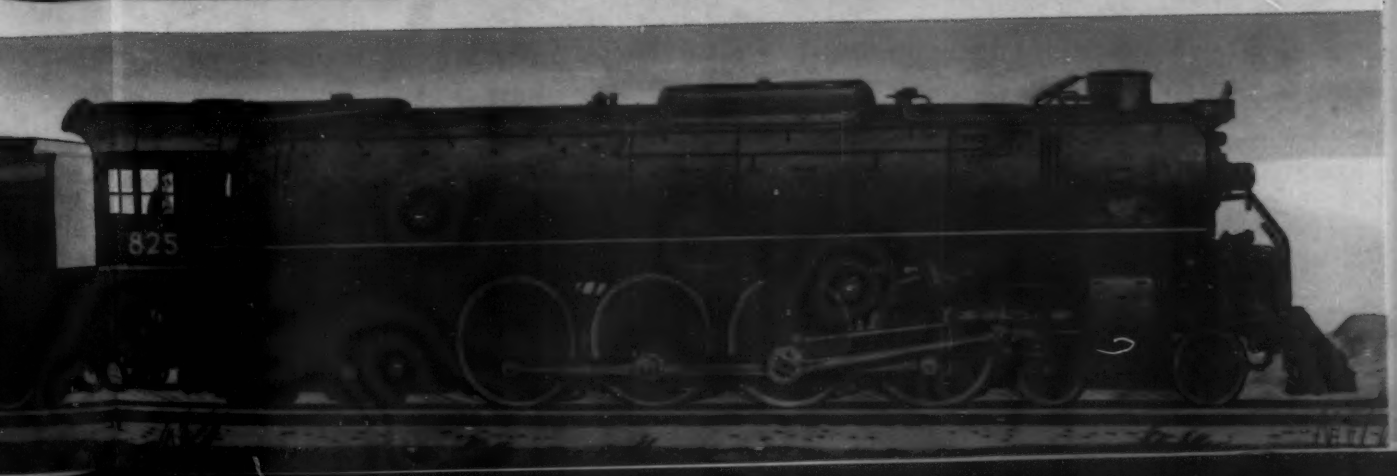
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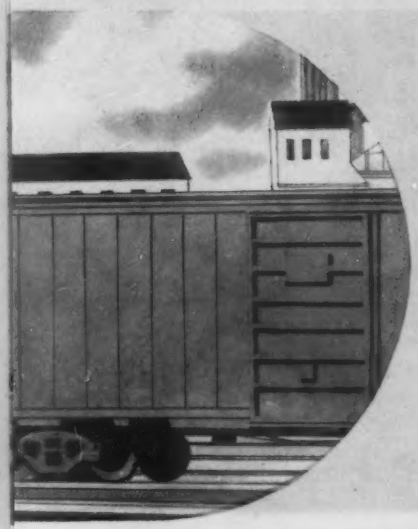
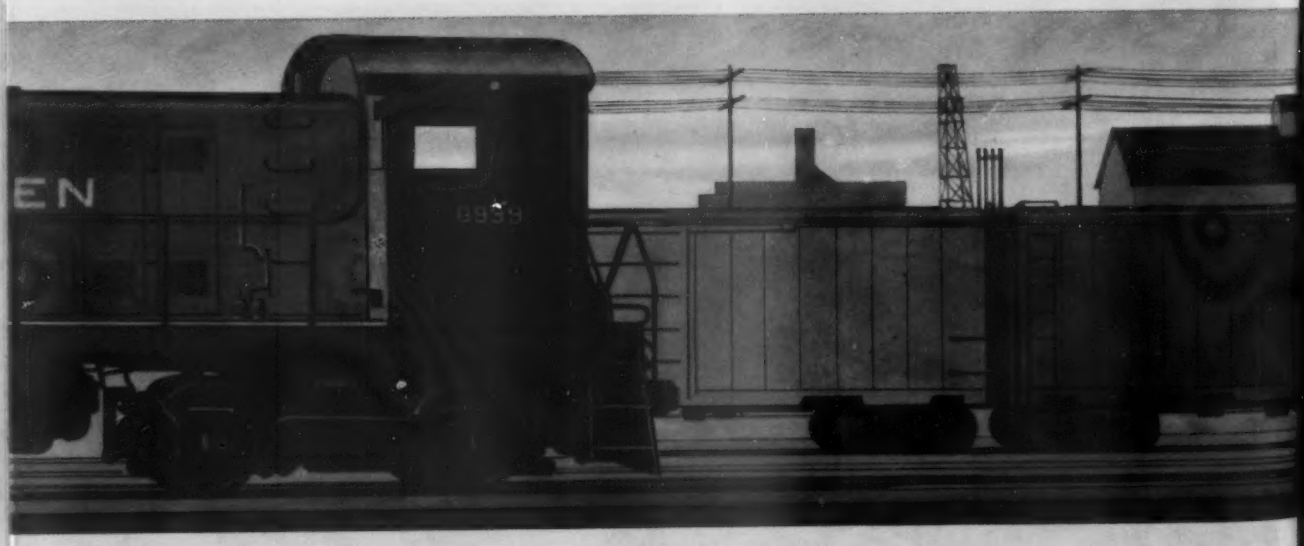


FIRST DIESEL SWITCHER placed in service by the New Haven was a 600 h.p. engine built by American Locomotive and General Electric in 1931. In 1940—nine years later—maintenance records on this first Diesel switcher show costs practically the same as for latest-type units operated by this road.



SO SUCCESSFUL was the installation of 20 4-8-4 type steam locomotives built by American Locomotive for Union Pacific in 1937 that a further order for 15 more of this type was delivered in 1939, followed by 10 more in 1944.

are posed. Any "pet peeves?" asks the railroad, bidding for comments on possible disturbances encountered when traveling in sleeping cars.

Those traveling in bedrooms are asked to report on space for clothing and luggage, leaving ample room for writing-in their dislikes.

The questions of lighting and air conditioning are brought up, in the case of lighting opinion being solicited on all three types—overhead, side or reading lights, and mirror lighting. "Too cool, too warm, too variable, about right" are suggested views on sleeping car temperatures. Toilet arrangements are pictured, with the bedroom passenger asked to specify preference for the stationary or the retractable unit. One-half page can be written, if desired, on ideas for improving washing or toilet facilities.

Querying the type of accommodations procured by the passenger during the past two years—upper berth, lower, roomette, bedroom, compartment, or drawing room—the reader is asked to note which type he would choose for an overnight run of 12 hours, and, in case of his taking this trip with another, to indicate his choice of space.

The coach sleeper, designed to give sleeping facilities at the lowest possible cost, is pictured, with the inquiry as to whether the passenger would select this accommodation for a 12-hr. overnight run, and thus garner a possible saving of $6.10 on a standard upper berth and $8.15 on a lower.

Method of ticket purchasing is also a topic, with place of purchase asked, and the passenger's view as to whether or not he would like to have a railroad credit card, similar to hotel credits. The possibility of radio receivers for each accommodation on the train, is proposed, with "like it" and "dislike it" boxes to be filled in. Comments on smoking facilities are requested, and the several personal services which might contribute most to enjoyment of the journey are listed, the reader to fill in his order of preference: Porter, secretary, barber, manicurist, maid, stewardess-nurse, and valet.

In conclusion, the traveler is asked to specify, which, in the order of all topics discussed, is the "most important to you."

F. H. Baird, general passenger traffic manager, indicates that though the railroad is all-out for war, "we are planning for peace." The present survey is one of a series—there will be others on dining cars and freight service—designed to give "post-war America the kind of finer rail transportation it will want." And he suggests, "Most important of all, by helping prepare new equipment plans for prompt production, the present studies will pave the way for many thousands of jobs at the very time such a stimulant to employment will be most valuable."

Equipment on Order

Class I railroads on August 1 had 37,985 new freight cars on order, according to the Association of American Railroads. On the same date last year they had 27,795 on order.

This year's August 1 total included 12,417 hopper, 3,797 gondolas, 542 flat, 16,451 plain box cars, 2,160 automobile box cars, 2,118 refrigerator, and 500 stock freight cars.

The Class I roads also had 608 locomotives on order on August 1, compared with 1,014 on the same day in 1943. The former figure included 172 steam, two electric and 434 Diesel-electric locomotives, compared with 485 steam, four electric and 525 Diesel-electric locomotives one year ago.

Class I roads put 18,774 new freight cars in service in the first seven months this year compared with 12,030 in the same period last year. Those installed in this year's first seven months included 9,744 hopper, 1,741 gondola, 973 flat, 1,348 automobile box, 4,722 plain box, and 245 refrigerator freight cars and one other car.

They also put 579 locomotives in service in the first seven months, of which 211 were steam, one electric and 367 Diesel-electric. Locomotives installed in the first seven months of 1943 totaled 343, of which 230 were steam, 14 electric and 99 Diesel-electric.

July Ton-Miles

The volume of freight traffic handled by Class I roads in July amounted to approximately 63,750,000,000 revenue ton-miles, according to prelimnary estimates based on reports received by the Association of American Railroads. In July 1943, it was 63,742,367,000 revenue ton-miles.

	1944	1943	Per cent Increase
First 5 months	307,018,583,000	291,970,400,000	5.2
June	[1]62,000,000,000	57,968,242,000	7.0
July	[2]63,750,000,000	63,742,367,000	0.0
7 months' total	432,768,583,000	413,681,009,000	4.6

[1] Revised estimate.
[2] Preliminary estimate.

Class I roads in the first seven months of 1944 performed 4½ per cent more revenue ton-miles of service than in the same period of 1943. The 1944 total was also 1¼ times that of 1942 and 2½ times that of 1939.

The accompanying table summarizes revenue ton-mile statistics for the first seven months of 1944 and 1943.

Improper Car Repairs Waste Manpower

In a letter dated August 10, V. R. Hawthorne, executive vice-chairman of the A. A. R. Mechanical Division, states that certain repair points, fully equipped to make proper repairs to freight cars without undue delays, are resorting to wrong repairs of a temporary nature in order to release as many cars as possible within a given period of time.

While such practices may result in a larger shop turnover of cars repaired, Mr. Hawthorne points out that, where the repairs are not of a lasting nature the same car has subsequently to be shopped within a short period of time; thus the net result is a much greater delay than there would have been had the car been held a little longer in the previous shopping and repairs properly performed.

This matter was previously covered in an A. A. R. circular letter of December 22, 1941, and it is urged in the interest of manpower conservation and expeditious handling of freight cars that proper action be taken to carry out the intent of this circular consistently in all cases.

Where cars are sent to a contract shop for repairs, the car owner is requested to impress upon the contract shop management the necessity for making complete and permanent repairs as outlined in this circular.

Would New Englandize One I. C. C. Membership

Representative Philbin, Democrat of Massachusetts, has introduced H. R. 5207 to amend section 24 of the Interstate Commerce Act in such a way as to require that one member of the Interstate Commerce Commission shall be from the New England states. In an accompanying statement Mr. Philbin said that his sponsorship of the bill was "in response to many requests from representative groups in my district, state, and region."

He went on to say that for many years New England "was represented" on the I. C. C. by the late Commissioner Joseph B. Eastman, adding that, if the pending nomination of George M. Barnard of Indiana, as Mr. Eastman's successor, is confirmed by the Senate, "New England will be without representation in this vital field of federal control." Meanwhile, Mr. Philbin did not question the qualifications of Mr. Barnard.

But he seems to believe in a sectionalized I. C. C.; for he said that many sections of the country are now represented on the regulatory body, "and it is right and proper that they should be." At the same time the present set-up "is out of balance," and "does not take into account many important industrial and agricultural states and sections." Thus Mr. Philbin's disposition to welcome suggestions of his colleagues for "perfecting amendments" which would make his bill "responsive not only to the needs of New England alone, but to the needs of every section and group in the entire nation."

In the latter connection, he had previously said that "Undoubtedly, a statute might be drawn requiring specific representation of all the principal regions of the nation with reference to their particular economic interests, leaving some members to be appointed at large without regard to sectional considerations."

Proposes Air Transport Study

Representative Randolph, Democrat of West Virginia, has introduced House Joint Resolution 304 to establish an "Air Policy Commission" for the purpose of studying aviation problems with a view to recommending "basic national policies" on "air

power as an instrument of national defense and international security," and "the expansion of civil aviation."

The commission would consist of two members of the Senate, appointed by the president of the Senate; two members of the House, appointed by the speaker; four members of the executive branch of the government, appointed by the President; and six "public" members, appointed by the President "from industry, science, labor, and other sections of the national economy, not directly engaged in the aircraft manufacturing or air transport industries." The first report of the commission would be due six months after it began operations, but it would continue in existence until December 31, 1946, making from time to time "such additional recommendations as it may deem desirable, or as may be requested by the President or the appropriate committees of the Congress." The resolution authorizes an appropriation of $100,000 to carry on the commission's work.

Rock Island Tests Facsimile on Moving Train

On August 15 the Chicago, Rock Island & Pacific demonstrated the use of radio-controlled facsimile machines for the transmission of handwritten or typewritten messages from an office at Blue Island, Ill., to the caboose on a freight train en route westward from Blue Island to Joliet, Ill.

The facsimile-sending equipment in the Blue Island station includes an electric eye (photo-electric cell) which is operated on a lead-screw assembly to scan the message on a sheet of paper wrapped about a cylinder. The amount of light reflected from the paper changes the modulation characteristic of a 5,000-cycle note. This gives an amplitude modulated note, depending on the blackness of the typing in contrast with the white sheet of the message being scanned. This amplitude modulated component is transmitted by frequency modulation radio to the receiving equipment on the caboose. The equipment is arranged to transmit either on 80-kilocycle carrier or on 40-megacycle frequency-modulated carrier. The facsimile equipment on the caboose is about the same, mechanically, as the sending machine. The amplitude-modulated note, being received, gives varying voltage across a sheet of paper. The greater the voltage the more the particular spot of paper is darkened, thus reproducing the writing.

Train Conductor Removing Message From the Facsimile Machine in the Caboose

The operations of the sending and receiving facsimile machines are synchronized. The machine in the office is operated by a synchronous motor from the local 60-cycle supply. On the caboose, a synchronizing unit includes an 1,800-cycle tuning fork which triggers a multi-vibrator. This vibrator oscillates at 60 cycles per second which is amplified and drives a synchronous motor. A small change on the 1,800-cycle fork will change the phase of the motor, and the motor can be "locked" in with the one at the office by means of this phasing control.

Also Telephone Communication—An inductive coupling carrier system, using a loop on the caboose and wires on the pole line, was in service to provide two-way telephone communication between the caboose and the station at Blue Island. The loop consists of four turns of wire on a frame lengthwise around the body of the car. An electric field is set up between this loop and two wires on the pole line along the right of way. The 80-kilocycle energy from the loop is inductively received by the wires on the pole line and transmitted over these wires to the office. Similarly, when the office is transmitting, the 80-kilocycle energy on the pole line wires is inductively received by the loop on the caboose to operate the receiving apparatus. The 80-kilocycle carrier current does not interfere with the use of the wires on the pole line for other forms of communication previously in service.

Two-way telephone communication between the caboose and the cab in the locomotive of the freight train was provided by radio apparatus operating at 30-40 megacycles, frequency modulated. Among the various guests on this demonstration trip were the superintendents of telegraph of seven large railroads, and representatives of the Federal Communications Commission and the Interstate Commerce Commission.

Low Fares for Discharged Military Personnel

"As the railroads' contribution to the reintroduction of service people to civilian life," special fares of 1¼ cents per mile will be established on September 1 for personnel of the Army, Navy, Marine Corps and Coast Guard who have been discharged or released from military service.

The special fares, announced last week by J. J. Pelley, president of the Association of American Railroads, will be good for one-way travel in coaches from the point of release to a destination in the United States or Canada, and will be available to any member of the nation's military forces who has been released from active service and is traveling at his own expense. Special fare tickets will be issued by the railroads upon presentation of the proper credentials, and they will be good for a period of 30 days in addition to the date of sale. Stopovers will be permitted within the limit of the ticket.

"These special fares are in line with the railroads' policy of allowing reduced rates to our uniformed men and women traveling on furlough," Mr. Pelley commented, "and their purpose is to help service people return to civilian life with as little expense as possible to them. The special fares are not, under any circumstances, being put into effect with a view to stimulating rail traffic."

Study of Fuel Costs

The Interstate Commerce Commission has made public a report on the "Use and Cost of Railway Fuel and Problems in Fuel Statistics," which was prepared by Alexis P. Bukovsky, transport economist of the Bureau of Transport Economics and Statistics. The report carries the usual disclaimer that it "has not been considered or adopted by" the commission. It is Statement No. 4428.

As described briefly by Dr. M. O. Lorenz, director of the Bureau, the study "brings together available information regarding fuel viewed as a major item of railway expense, treats certain problems in this field, and points the way to further studies." A brief summary "of some of the more essential points developed in the report" is as follows:

In 1942, Class I line-haul railways used 142,057,000 tons of fuel in locomotives and rail motor-cars, distributed as follows: Freight service, 66.2 per cent, passenger service, 19.3 per cent, yard-switching service, 13.3 per cent, and work-train service, 1.2 per cent. In 1943, the total was estimated at about 160,000,000 tons, an increase of 12.5 per cent. The latter figure was 18.5 per cent above that of 1920, but a much larger volume of business was done in 1943. The total for 1943 contrasts sharply with the level of consumption during the 'Thirties, which had fallen back to that of the decade 1900-1910. Fuel expense declined fairly steadily from 14 per cent of operating expenses in 1917 to 7 per cent in 1931, with a slight rise thereafter to 8.4 per cent in 1942. Including power, the ratio in 1942 was 8.8 per cent.

Bituminous coal, 92 per cent of all fuel used by railways in train and switching operations in 1899, represented only 77 per cent of the total in 1942. The remainder in the latter year consisted of fuel oil, 18 per cent, anthracite, 0.2 per cent, and other fuels (electricity, diesel oil, etc.), 5 per cent. Fuel used in other than train and switching operations constitutes a relatively small part of the total. All railway uses of bituminous coal in 1943 accounted for 21.9 per cent of the nation's consumption of such coal; corresponding percentages were 18.0 for fuel oil (1942), 12.8 for diesel oil (1942), 2.5 for anthracite coal (1941), and 0.2 per cent for gasoline (1940). Sales of fuel oil to railroads declined from 20.5 per cent of the United States total in 1927, while sales of diesel oil increased from 2.8 per cent of the total in 1937 to the aforementioned 12.8 per cent in 1942. An estimate is cited which shows that in 1940 the railroads accounted for about 13 per cent of the country's energy consumption from coal, petroleum, and natural gas.

The average cost of railroad coal (f.o.b. mine) was $1.79 per ton in 1936 and ranged from $1.88 to $1.92 in 1937-1940; in 1941 it advanced to $2.02 and in 1942 to $2.13; the 1943 average cost, $2.42, was 29 cents above the 1942 average and 54 cents above the average for 1940. In 1943, the average unit cost, including freight and handling charges, was $3.06 per ton. In 1920, this average was $4.20. Fuel oil in 1943 averaged $1.09 per barrel as compared with $1.67 in 1920. The cost of diesel oil has gone up from 4.37 cents per gallon in 1936 to 5.57 cents in 1943. The cost of electric current, on the other hand, has gone down from 0.851 cent per k.w.h. in 1936 to 0.781 cent in 1943. In March, 1944, the respective costs were $3.35, $1.13, 5.63 cents, and 0.803 cent. Index numbers of the unit costs of fuel and power are given for the years 1919 to 1943, or for the years for which data are available.

Railroad practices in the buying of a fuel have resulted on the whole in paying higher prices than have been paid for similar fuel used for industrial purposes, but there is no evidence that the prices railroads paid exceeded the cost of production in the period of years prior to the passage of the Bituminous Coal Act in 1937. The regulation of minimum prices under that Act tended to perpetuate many of the price differentials between

locomotive and industrial coal which had their basis in reciprocal "purchasing" and other "extraneous" factors. Minimum price regulation was effective in holding up the price level for locomotive fuel from October, 1940 until April, 1941, when a general increase in coal prices began; thereafter, the effect, if any, was local in character. Maximum prices set by the Office of Price Administration became effective May 18, 1942, and were advanced early in 1943 as a result of higher costs. By reason of tight supplies and of the effects of such regulation, it is believed that in many cases the railroads ceased to pay any more or any less for coal than did industrial users.

In recent years, railroads have obtained about 20 per cent of their coal from mines which they or their subsidiaries own and operate. Coal obtained from these mines, generally low-cost mines, is indicated by partial data to have cost the railroads 17 cents or 9 per cent less per ton than the cost of coal purchased f.o.b. mines by other railroads, but it is believed that complete and accurate data would show a much greater difference.

While it has given much attention to the matter over a period of years and certain railroads have made some progress, the railroad industry as a whole continues to lag behind in the matter of developing specifications for the fuels it buys. The work which has been done on the best sizes of coal and on mechanical cleaning is described in the report. The great variety of coals used gives rise to the problem of equating these coals to a common basis for statistical purposes. The only apparent way of so doing is in terms of relative B.T.U. content. The question of whether or not fuel performance figures should reflect changes in efficiency arising from a change from one to another type of fuel is found to be the essence of the controversy that exists over the methods of determining conversion factors to be used in equating other fuels to equivalent tons of coal.

The report calls attention to some of the problems encountered in measuring the efficiency of locomotive fuel consumption and traces the decline in the rate of consumption. It concludes by showing in what ways fuel statistics could be improved to make them more useful and accurate.

Calls for Three New Transport Agencies

(Continued from page 348)

and policies which should be adopted; (2) submit an annual report and recommendations to the President and Congress, and such additional reports as may be requested by them or deemed desirable by the authority; (3) consult with and provide information and make recommendations to governmental agencies concerned with transportation with a view to coordinating their activities in conformity with the national transportation policy; (4) cooperate with and assist the Office of Public Transportation Counsel, and, in appropriate cases, testify and present evidence as to the public interest in transportation questions before regulatory bodies and the courts; (5) consult with, advise, and furnish information to carriers and others having a direct and substantial interest in transportation, with a view to encouraging voluntary measures for carrying out the national transportation policy.

The authority would also be authorized to make such studies and investigations, to hold such hearings, and to obtain such information as it deems necessary or proper. In this connection it would have the power of subpena. Among the authority's employees would be a $7,500-a-year secretary, and a $9,000-a-year general counsel, appointed "without regard to the civil service laws." When two or more members of the authority first appointed have taken office, the bill provides that B. I. R. "shall cease to exist," and its records, personnel, unexpended funds, etc., as the President may determine, shall be turned over to the authority.

Also, the President would be authorized to transfer to the authority such functions of other federal agencies as relate chiefly to research and investigation in the transportation field.

A Transport Prosecutor—The Office of Public Transportation Counsel, which the bill would establish within the Department of Justice, would be headed by a Public Transportation Counsel, appointed by the Attorney General, "without regard for political affiliations and solely on the basis of his fitness to perform the duties of his office." It would be the duty of the office "to see that the general public interest and the interest of the United States are adequately represented in administrative proceedings involving questions or policies relating to transportation, to institute or cause to be instituted such administrative proceedings and judicial proceedings . . . as may be necessary to protect the public interest . . . and to furnish the authority and other federal agencies legal assistance and advice." The Office would be further directed to cooperate with the authority, exercising its powers "upon its own motion or upon the request or recommendation of the authority."

Short Terms for Advisers—The proposed National Transportation Advisory Committee composed of a representative of the Department of Commerce, to be designated by the Secretary of Commerce, a representative of the Interstate Commerce Commission, to be designated by the commission, and an unspecified number of additional members to be designated by the President with the advice and consent of the Senate, "from among properly qualified individuals in the fields of transportation, labor, finance, agriculture, industry, and other groups interested in transportation." One-year terms would be given half of the original appointees, and two-year terms to the others; thereafter the term would be two years.

The committee would "advise and consult" with the authority and the public transportation counsel. The Department of Commerce and I. C. C. representatives would serve without remuneration, while the members appointed by the President would receive per diem allowances, not to exceed $15 per day, and expenses.

Some Orders Re Rates—The proposed amendments to the declaration of national transportation policy would require the establishment of joint rates among all types of carriers, and call for rates "free from discriminations, preferences, prejudices, or inequalities," and in "reasonable relationship to the cost of the service and the revenue needs of the carriers." It would also be stipulated that "no limitation or restriction designed to limit or prevent competition shall be imposed upon any carrier or any transportation service which shall have the effect of increasing the cost of service to the public."

In introducing his bill, Senator Hill inserted a statement in the August 18 issue of the Congressional Record. It called the proposed legislation a plan "to promote an adequate and economical national transportation system." It recalled that other agencies, before B. I. R., had also recommended the establishment of a permanent "transport research body," adding that such an agency "is particularly needed now to help solve transportation problems as they arise."

Equipment and Supplies

LOCOMOTIVES

The ALTON has been authorized by the federal district court at Chicago to purchase six Diesel-electric locomotives at a total cost of $562,000. One of the locomotives, for passenger service, will be purchased from the Electro-Motive division of the General Motors Corporation and five switching locomotives will be bought from the American Locomotive Company.

FREIGHT CARS

The ALTON has placed orders for 1,500 new freight cars—allocating 500 50-ton box cars to the Pullman-Standard Car Manufacturing Company; 250 50-ton gondola cars to the General American Transportation Corporation; and 600 50-ton box cars and 150 50-ton hopper cars to the American Car & Foundry Co. The inquiry for this equipment was reported in the *Railway Age* of July 22.

The BALTIMORE & OHIO has placed orders for 1700 new freight cars as follows: 1000, Class N-35-A steel hopper cars; 500, Class M-55-C box cars, and 200, Class M-58 automobile cars, all cars of 50 tons capacity, with the orders awarded to the Bethlehem Steel Company, General American Transportation Company, and Greenville Steel Car Company, respectively. Purchase of this equipment, recently approved by the board of directors of the Baltimore & Ohio, involves an expenditure of approximately $5,250,000. Inquiry for the equipment was reported in the *Railway Age* of August 5.

The CANADIAN PACIFIC has placed orders for 1,150 new freight cars for delivery in 1945—allocating 750 50-ton steel-sheathed box cars to the Canadian Car & Foundry Co.; 200 50-ton overhead refrigerator cars to the National Steel Car Company, and 200 70-ton gondola cars to the Eastern Car Company. These are in addition to orders for 2,140 freight cars placed with contract builders in January of this year (reported in *Railway Age* of January 22) on which deliveries are now beginning, and to 50 caboose cars being built in the company's own shops.

The WAR DEPARTMENT has placed orders for 24,660 standard-gage freight cars for delivery in 1945 for foreign use as follows:

8,500 20-ton box	Pullman-Standard
1,500 20-ton box	American Car & Foundry
1,000 20-ton box	General American
180 40-ton box	Greenville
11,180	
1,700 40-ton gondola	Pullman-Standard
120 40-ton gondola	Mt. Vernon
6,700 20-ton gondola	Pressed Steel
8,520	
1,320 55-ton flat	American Car & Foundry
830 30-ton refrigerator	American Car & Foundry
940 tank	American Car & Foundry
700 tank	General American
1,640	
1,170 20-ton caboose	Greenville

Construction

LOUISVILLE & NASHVILLE.—This company has applied to the Interstate Commerce Commission for authority to construct a 3.5-mile line from a point near Millport, Ky., southward to reach an undeveloped coal mining area.

ST. LOUIS-SAN FRANCISCO.—This road has awarded a contract, amounting to $36,000, to Chapman & Bramer, Springfield, Mo., for the construction of seven stalls of a roundhouse at Amory, Miss., to replace a similar number of stalls which were destroyed by fire in December, 1943.

Supply Trade

The Stamford division of the **Yale & Towne Manufacturing Co.** has been presented the Army-Navy "E" for excellence in war production.

Joseph S. Bennett, former manager of sales, has been elected vice-president of the **American Engineering Company,** Philadelphia, Pa.

The **Kalamazoo Railway Supply Company,** Kalamazoo, Mich., has changed its name to the **Kalamazoo Manufacturing Company** to more clearly indicate the nature of its business.

The **Edward G. Budd Manufacturing Company** has received a fifth award for maintaining its production schedules, giving it the right to fly its original Army-Navy "E" flag with four stars.

L. F. Weyand, general sales manager of the **Minnesota Mining & Manufacturing Company's** adhesive and coatings division since 1936, has been promoted to general manager.

J. Brookes Spencer, vice-president of the **American Brake Shoe Company,** has been appointed chairman of the railway supplies committee in the $250,000 campaign of the Travelers Aid Society of New York.

R. G. Wingerter, for the past six years an industrial engineer for the **Timken Roller Bearing Company,** has been promoted assistant chief engineer for the industrial division of Timken.

Robert L. Irvin has been appointed works manager of the Graham plant of the **Pittsburgh Screw & Bolt Corp.** to succeed **George H. Lee, Sr.,** who will devote his time to experimental and advisory work for all plants of the corporation.

Arthur R. Hamilton, sales representative in the New York office of the **Safety Car Heating & Lighting Co.,** who has been associated with that company for the past 22 years, has resigned to take an executive position with the Quicap Company of New York.

The **Mount Vernon Car Manufacturing Company,** a division of the H. K. Porter Company of Pittsburgh, Pa., has completed the drilling of its first oil well in Zanesville, Ohio. The company is engaged in an active drilling campaign in Ohio and Mississippi.

Thomas P. Gorter, vice-president of the **Pullman-Standard Car Manufacturing Company,** Chicago, has been appointed sales director of transportation equipment for the United States, Canada and Mexico and has been elected a director of the Pullman-Standard Car Export Corporation.

George Hamburger, formerly with the Delta Star Electric Company, has been appointed in charge of a new office opened by the **Copperweld Steel Company** in the Railway Exchange Building, St. Louis, Mo. Mr. Hamburger's territory comprises Missouri, Kansas, Colorado and the southern half of Illinois.

The **Lima Locomotive Works,** Lima, Ohio, has made arrangements with a group of New York banks, headed by the New York Trust Co., for a $12,000,000 VT loan to insure additional working capital in the event of any extensive termination of its war contracts. The agreement is for two years with the interest rate at 2½ per cent a year and the commitment fee ⅜ of 1 per cent on the unborrowed portion.

The **Ransome Machinery Company,** a subsidiary of the Worthington Pump & Machinery Corp., has appointed the following companies as distributors of the Ransome line of welding positioning equipment: the Post Welding Supply Company, Birmingham, Ala.; Hobart Welder Sales & Service, Cleveland, Ohio; the W. P. & R. S. Mars Company, Duluth, Minn.; the American Machinery & Supply Co., Omaha, Neb.; the Arcway Equipment Company in Pittsburgh and Philadelphia, Pa., Baltimore, Md. and Richmond, Va.; Hobart Sales Service Supplies in Buffalo and Syracuse, N. Y.; the Peoria Welding Supply Company, Peoria, Ill.; the Big Three Welding Equipment Company in San Antonio, Corpus Christi, Dallas, Houston and Fort Worth, Texas; Moline Welding Service, Moline, Ill.; the Chicago Welding Sales Company, Chicago; the Victory Equipment Company in San Francisco, Fresno, Los Angeles and San Diego, Calif.; the Austin-Hastings Company in Cambridge and Worcester, Mass., and Hartford, Conn.; J. E. Raney & Co., Boston, Mass.; and the Welding Engineering & Sales Co. in New York, Buffalo and Syracuse, N. Y.

OBITUARY

Edward Bausch, chairman of the board of the Bausch & Lomb Optical Co., died July 30. He was 89 years of age.

John C. Dilworth, manager of sales in the railroad materials and commercial forgings division of the Pittsburgh and Chicago districts of the Carnegie-Illinois Steel Corporation, died on August 23, in Pittsburgh, Pa.

Harry Scott Wherrett, chairman of the board of directors of the Pittsburgh Plate Glass Company, died August 13. He was 68 years of age. Mr. Wherrett began his career with the Pittsburgh Plate Glass Company as an office boy 53 years ago.

Financial

CANADIAN PACIFIC.—*Defers Common Dividend.*—At a meeting of the board held in Montreal, directors of the Canadian Pacific have decided to defer action on the question of the payment of a dividend on the ordinary capital stock of the company. "In view of the onerous expense liability foreshadowed in the National War Labor Board's recent award on railway wages, both future and retroactive, and the final issue thereof being still unsettled." A dividend of 50 cents per share on the ordinary stock was declared on February 16. This was the first declaration on the common since April 1, 1932.

CHESAPEAKE & OHIO.—*Purchase of W. & L. E. Stock.*—This road has applied to the Interstate Commerce Commission for authority to acquire from the Alleghany Corporation 5,482 additional shares of Wheeling & Lake Erie common stock at a price not exceeding $60 per share. Under previous authorizations, the C. & O. has acquired 60,000 shares of W. & L. E. common and a 14,337-share block of common and preferred.

CHICAGO, BURLINGTON & QUINCY.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to issue and sell $40,000,000 of first and refunding mortgage bonds, series of 1974, the proceeds to be applied to the redemption of a like amount of first and refunding 5 per cent bonds, due February 1, 1971. The 5's will be called for redemption February 1, 1945, at 107½ with the premium of $3,000,000, accrued interest of $1,000,000 and incidental expenses paid from the applicant's cash funds. The new bonds would be sold under competitive bidding arrangements; and the application states that it is expected that the sale will be on a basis not exceeding 3¾ per cent. It is proposed to provide for a sinking fund, with payments equaling 10 per cent of dividends declared on the applicant's capital stock.

CHICAGO UNION STATION.—*Bonds.*—A banking group headed by Kuhn, Loeb & Co., has been awarded an issue of $37,800,000 of first mortgage series G 2⅞ per cent bonds of this company, dated July 1 this year and maturing in 1963. An issue of $6,200,000 of serial notes, maturing 1945 to 1954, went to the First National Bank of Chicago. Proceeds of the new issue will be used to redeem $44,000,000 of 3¾ per cent first mortgage bonds, Series E. The 2⅞ per cent bonds have been publicly offered by the bankers at 101½. Sale price of the bonds to bankers was 100.639. Interest cost of the notes to the railroad will be 1.828 per cent.

ERIE.—*To Retire Bond Issue.*—The Erie is arranging to retire, prior to maturity, the entire $2,482,000 issue of New York & Erie first mortgage 4 per cent bonds due May 1, 1947, which are non-callable. The railroad will deposit with the First National Bank of the City of New York sufficient funds to pay at once to holders of these

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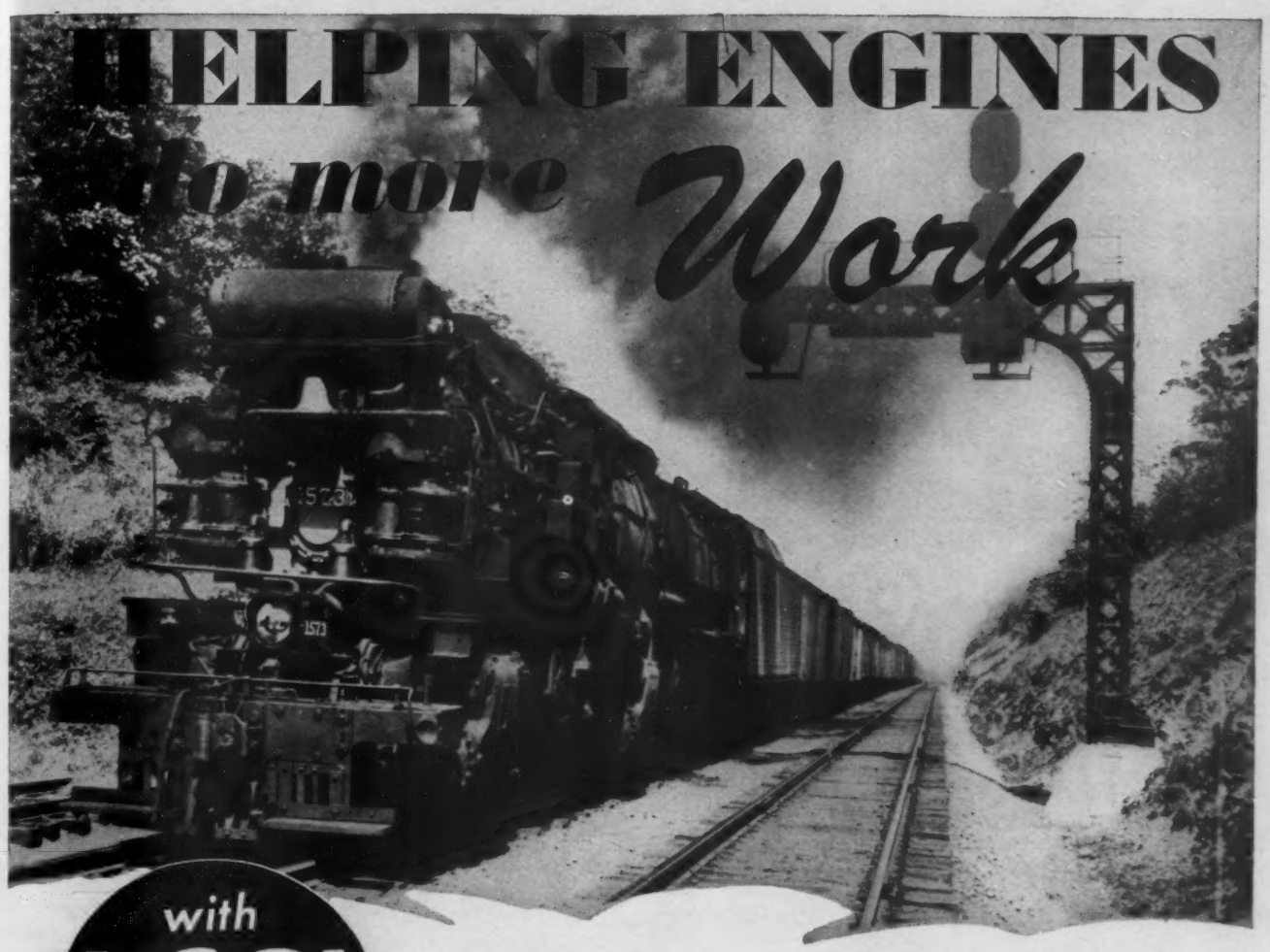

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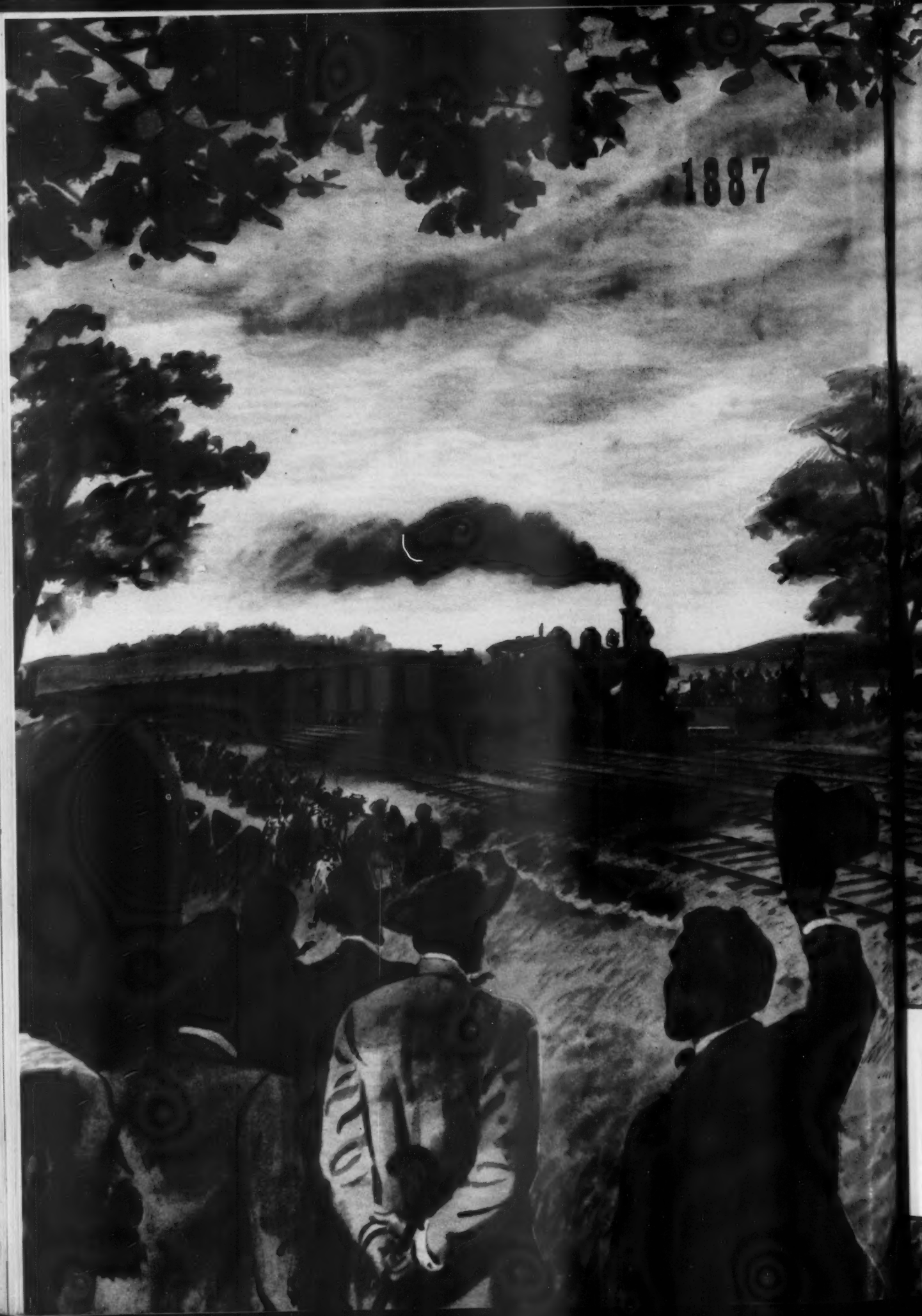

1887

THIS FAMOUS TEST

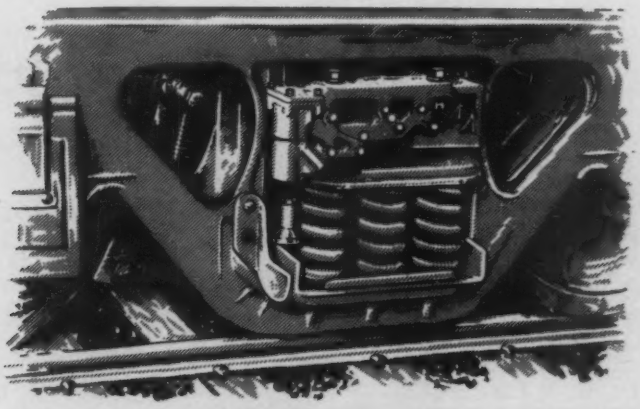
smoothed out the stops

The warm reception given the Westinghouse Air Brake, and its world-wide acceptance, did not discourage dozens of inventors of competitive devices . . . and the Westinghouse brake maintained its leadership by proving its superiority in many tests.

The most famous early tests were at Burlington, Iowa, where the braking powers of a number of braking systems, applied to a 50-car freight train, were demonstrated. This test established for all time the supremacy of air as a braking medium . . . but it left George Westinghouse unsatisfied with the performance of the current equipment. Retaining the basic design, but modifying it somewhat in detail, he developed the quick-action brake, which was installed on the test train. The first demonstration was at Hawkins, Pennsylvania, with remarkable results, and the train was then taken on a triumphal tour. Railroad men all over the country marveled to see the speed and smoothness with which the brakes acted . . . the brakes in the last car applying only a few seconds after the brakes on the first car went on. Westinghouse Air Brake Company had done it again!

75 Years of Pioneering

WESTINGHOUSE AIR BRAKE COMPANY, WILMERDING, PA.

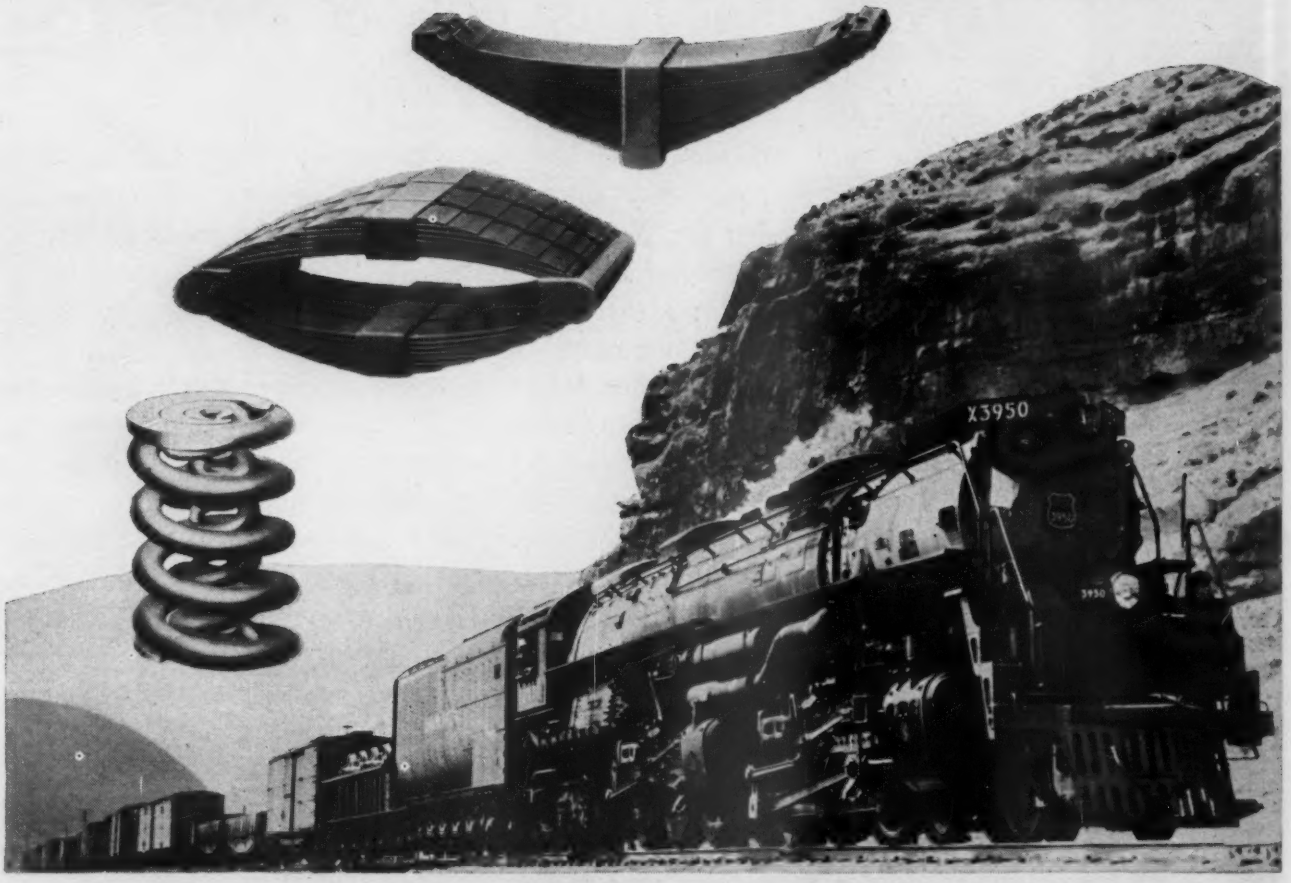


One of the refinements available today is the "AB" Automatic Empty and Load Brake equipment. Smooth handling of empty trains is provided . . . and braking power is automatically increased to handle the extra payload, giving adequate braking capacity under all conditions. Thousands of these equipments are now in use . . . their potential field in lighter-weight, high-capacity cars is almost limitless.

1869 1944

TO PERMIT TODAY'S TRAINS TO MOVE AT SHORTER INTERVALS WITH HEAVIER LOADS AT HIGHER SPEEDS—SAFELY.

TRIPLE DUTY



"RAILWAY" SPRINGS protect *Lading-Equipment-Earnings*

HIGHER train speed and intensified service demands have added to the spring responsibility of assuring triple protection to lading, equipment and earnings. "Railway" quality springs are doing a bigger and better job today than ever before.

Alco

AMERICAN LOCOMOTIVE COMPANY

RAILWAY STEEL-SPRING DIVISION

20 CHURCH STREET NEW YORK, N. Y.

SR-4 STRAIN GAGES

Let you design DOWN to load . . . reinforce UP to load!

If you are designing and constructing a new machine or structure, the SR-4 Strain Gage will give you an accurate check on the stresses in every part, put the finger on the "weak link," eliminate wasteful overdesign.

If you are repairing an old structure or machine, the SR-4 gage will tell you just where, and how much, reinforcing to apply.

Some types are as small as your little finger nail—application is easy—results are sure. The cost is so low that you can use all the units needed to get a complete picture. Stresses are measured to one part in two million, statically, and to nearly as small a value, dynamically. Certain types are serviceable at high temperatures. We will be glad to send you descriptive literature.

Bulletins now ready!

- No. 165—Torquemeter
- No. 169—Portable Strain Indicator
- No. 170—Strain Recorder
- No. 171—Applications
- No. 172—Scanning Recording Equipment
- No. 174—Applications to Shipyard Problems
- No. 175—Bonded Resistance Wire Strain Gage

THE BALDWIN GROUP

BALDWIN
SOUTHWARK
TESTING EQUIPMENT

BALDWIN Westinghouse

DIESEL-ELECTRIC LOCOMOTIVES O

Baldwin-Westinghouse 1000 hp. diesel-electric locomotive handling freight on the Chester Branch of the Reading.

BALDWIN SERVES THE

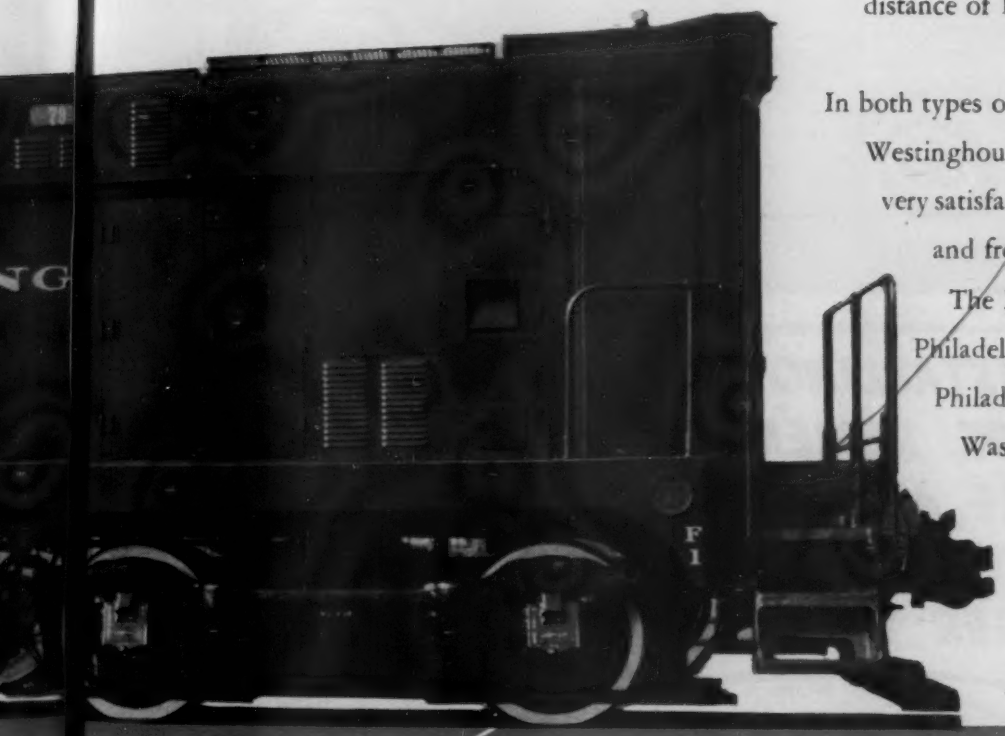
ES ON THE **READING**

The Reading Company has been using Baldwin-Westinghouse diesel-electric locomotives since 1939 and, today, has a large number of both 660 hp. and 1000 hp. diesel-electrics in service. Five of the 660 hp. and three of the 1000 hp. locomotives are assigned to the Chester Branch which traverses a busy industrial area.

The 660 hp. units are used in switching and delivery work, while the 1000 hp. locomotives are used in transfer service, handling from 4000 to 6000 tons for a distance of 12 miles, the entire length of the Chester Branch.

In both types of service the use of Baldwin-Westinghouse diesel-electrics has proven very satisfactory, both from an operating and from a mechanical standpoint.

The Baldwin Locomotive Works, Philadelphia, Pa., U. S. A. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland, Detroit, St. Louis, San Francisco, Houston.



BLW THE BALDWIN GROUP

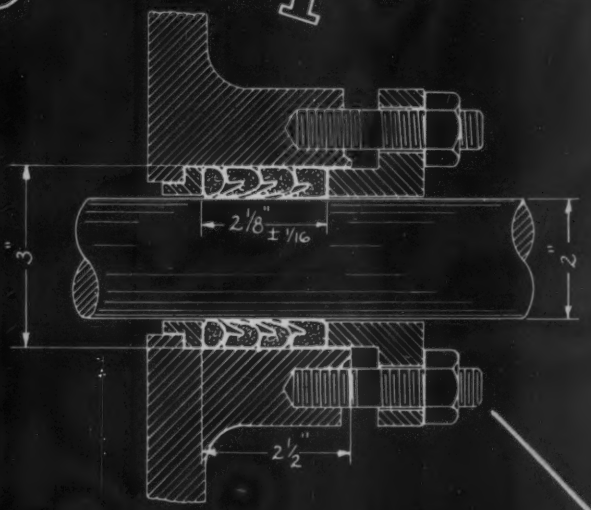
BALDWIN

LOCOMOTIVES

BALDWIN PRODUCTS for the railroads: Steam, Diesel-electric and electric locomotives, Diesel engines, hydraulic presses, special railroad shop equipment, testing machines and instruments, steel tires and rolled steel wheels, crane wheels, connecting rods and other steel forgings, steel castings, springs, metal plate fabrication, boilers, non-ferrous castings, bending rolls, plate planers, dynamometer cars.

ATION WHICH THE RAILROADS HELPED TO BUILD

John Maintenance says:



WHEN INSTALLING J-M SEA RINGS, REMEMBER THEY ARE AUTOMATIC— ADJUST GLAND ONLY "FINGER TIGHT"

Sea Rings are used on reciprocating equipment against steam, air, water, oil, etc., and on locomotives are particularly adaptable for Power Reverse Gears, Feed Water Heaters and Booster Ball Joints.

Because of their special design and construction J-M Sea Rings seal automatically, increasing or decreasing their pressure against the rod as the pressure in the confined fluid increases or decreases. This automatic action materially reduces the wear on both packing and rod, resulting in a reduction in maintenance and replacement costs, a saving in power cost and freedom from continual adjustment.

Since the J-M Sea Ring Packing does not depend on the gland pressure for its sealing, the gland should only be adjusted "finger-tight" to seal the packing properly.

For full details on J-M Packings write Johns-Manville at New York, Chicago, Cleveland, St. Louis or San Francisco.

JOHNS MANVILLE JM PRODUCTS

JOHNS-MANVILLE
85 YEARS OF SERVICE TO TRANSPORTATION

bonds the principal amount and full interest to date of maturity.

GRAND TRUNK WESTERN.—*Two Directors Elected.*—At a special meeting of the board of directors, held in Detroit, Mich., on August 7, C. A. Skog and P. R. Mork were elected directors to fill vacancies in the board. Mr. Skog is general manager of the G. T. W. and Mr. Mork is vice-president of the Crane Company, Chicago.

GREAT NORTHERN.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to issue $100,000,000 of its general mortgage gold bonds in connection with a refunding plan which will involve also a cash outlay of $23,441,097, plus any discount and minus any premium at which the gold bonds may be sold. Under the refunding plan the applicant proposes to call for redemption on January 1, 1945, at 105, its first and refunding mortgage 4½ per cent gold bonds, due July 1, 1961, and now outstanding in the amount of $35,668,000; at 101, its general mortgage convertible 4 per cent bonds, series G, in the amount of $25,138,950, and series H, in the amount of $31,385,750, both due July 1, 1946; at 104, its collateral trust 4 per cent gold bonds in the amount of $18,000,000, which are due $500,000 on July 1 of each of the years 1945 and 1946, $800,000 on July 1 of each year from 1947 to 1951, and $13,000,000 on July 1, 1952; and at 105, for redemption on April 1, 1945, the Northern Division Mortgage 4 per cent bonds of the Eastern Railway Company of Minnesota, due April 1, 1948, and outstanding in the amount of $9,695,000. The $100,000,000 issue, to be sold on the basis of competitive bids, would be in three series as follows: Series K, $35,000,000 of 3⅛ per cent bonds, due January 1, 1960; Series L, $30,000,000 of 3⅛ per cent bonds, due January 1, 1970; and Series M, $35,000,000 of 3½ per cent bonds, due January 1, 1980. The indenture would provide for a sinking fund, the bonds being redeemable at the option of the applicant in whole or from time to time on any interest date at varying premiums—lower if called for sinking fund purposes than otherwise.

KANSAS CITY TERMINAL.—*New Bond Issue.*—Bids will be received until August 30 for the purchase of a $47,000,000 first mortgage bond issue to be dated October 1, 1944, and to mature in varying amounts each October 1 from 1948 to 1973, inclusive, and $27,500,000 on October 1, 1974. Proceeds from the sale, together with funds provided by the company, will be used to retire on January 1, 1945, $49,121,000 of 4 per cent first mortgage gold bonds outstanding. (Previous item in *Railway Age* of July 29.)

MISSOURI PACIFIC.—*Bond Retirement.*—Guy A. Thompson, trustee for the Missouri Pacific, has filed a motion in the Federal District court at St. Louis, Mo., asking for court direction with reference to possible retirement of $10,352,400 principal amount of St. Louis, Iron Mountain & Southern, River Gulf division, 4 per cent bonds. The motion stated that it was filed pursuant to a provision in the recent supplemental order of the Interstate Commerce Commission approving a plan of reorganization for the railroad and permitting the trustee, subject to court sanction, to distribute treasury cash to creditors, pending consummation of the plan.

Under the plan, holders of Iron Mountain bonds would receive $10,352,400 of 3½ per cent 10-year collateral trust notes and $13,803,200 of first mortgage bonds corresponding to the currently outstanding $24,153,600 Iron Mountain bonds. The retirement of the Iron Mountain bonds would operate also as a retirement of the collateral trust bonds, the trustee points out, and in addition would effect considerable interest savings.

The trustee, in estimating cash available and requirements for reorganization at December 31, discloses that after meeting reorganization expenses, full interest for 1943 and 1944 on the proposed new first mortgage bonds, general mortgage bonds, sinking fund requirements, dividends on new preferred stock, and $20,000,000 reserve for system working capital, of which $15,000,000 is allocated to the Missouri Pacific, all accrued taxes and reserves for new equipment to be delivered prior to December 31, the Missouri Pacific will then have on hand a cash balance of approximately $9,700,000 to meet the proposed retirement of $10,352,400.

MISSOURI PACIFIC.—*Reorganization Plan Supported by Alleghany.*—On August 17, Robert R. Young, chairman of the board of the Alleghany Corporation, stated that there was no foundation for rumors that the Alleghany Corporation would oppose the Missouri Pacific compromise plan of reorganization which was recently approved by the Interstate Commerce Commission. He said that Alleghany had sponsored the compromise plan before the Interstate Commerce Commission jointly with other parties in interest and would continue to support it.

NEW YORK CENTRAL.—*Equipment Trust Certificates.*—On August 23, Salomon Brothers & Hutzler, Dick & Merle-Smith and Stroud & Co. offered for sale, subject to Interstate Commerce Commission approval the $15,500,000 issue of 1⅞ per cent equipment trust certificates of the New York Central, dated September 1, 1944, and maturing in 10 equal annual installments from September 1, 1945, to September 1, 1954. The issue was awarded by the railroad on an interest cost basis of 1.965 per cent. The certificates maturing during the first 5 years were sold privately. Certificates maturing from September 1, 1950, to September 1, 1954, were offered to the public at prices to yield from 1.80 to 2.10 per cent. (Previous item in *Railway Age* of August 12.)

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization Expenses.*—The Interstate Commerce Commission, Division 4, has approved maximum final allowances totaling $21,200.77 for the services rendered and expenses incurred in connection with this road's reorganization between January 1, 1941, and April 12, 1944, by the group of banks holding collateral notes. The award includes $1,200.77 for expenses incurred by the bank group and $20,000 for services rendered by its counsel, Mudge, Stern, Williams & Tucker. The petition had sought $46,134.01, including $45,000 for services of counsel.

PRESCOTT & NORTHWESTERN.—*Bonds.*—This road has applied to the Interstate Commerce Commission for authority to issue $55,000 of 4 per cent first mortgage bonds, dated October 1, 1944, and due October 1, 1949. The bond would be delivered to the Missouri Pacific in lieu of a like amount of a $75,000 issue of 5 per cent bonds previously delivered to the M. P. and pledged by the latter as collateral for a loan from the Reconstruction Finance Corporation. The remaining $20,000 of the outstanding issue would be redeemed for cash.

SOUTHERN.—*Georgia, Southern & Florida Bond Maturity.*—On August 15, the Southern notified the Georgia, Southern & Florida, of which it owns the controlling stock interest, that it cannot advance funds to meet the latter's $4,000,000 bond maturity due July 1, 1945, or guarantee a refunding issue. E. E. Norris, president of both roads, said the Georgia, Southern & Florida's own financial condition precludes its contributing more than $500,000 toward reducing the 1945 bond maturity and recommended that a refunding of the indebtedness be negotiated in the open market or with the Reconstruction Finance Corporation. A new management for the Georgia, Southern & Florida, disassociated from the Southern, also was recommended.

TOLEDO, PEORIA & WESTERN.—*Notes.*—The Interstate Commerce Commission has set September 22 as the date for oral argument before Division 4 at Washington, D. C., on the application filed by this road through its president, George P. McNear, Jr., for authority to issue $100,000 of three per cent notes to provide additional working capital. Examiner H. C. Howard's adverse report on the application was noted in the *Railway Age* of July 29, page 220.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—*Acquisition.*—The Interstate Commission, Division 4, has issued its second supplemental report in Finance Docket No. 14553, approving the acquisition by Terminal of control of the St. Louis Bridge Company and the Tunnel Railroad of St. Louis; and granting authority to finance the acquisitions with an issue of not exceeding $7,860,000 of refunding and improvement mortgage 4 per cent bonds, series C, due July 1, 2019. The decision authorizes Terminal's 15 proprietary railroads to guarantee the interest and sinking fund payments on the bonds, which are to be exchanged for Bridge and Tunnel stocks, any bonds not so exchanged to be sold in the open market at not less than par and the proceeds used to purchase any such stocks remaining unexchanged. Also approved is the issuance of a $7,860,000 note to cover a bank loan, and to be in effect only a few days to facilitate the mechanics of the financing. Further details of the proposed acquisitions were set forth in the *Railway Age* of June 3, page 1096.

Average Prices Stocks and Bonds

	Aug. 22	Last week	Last year
Average price of 20 representative railway stocks..	41.42	41.43	36.28
Average price of 20 representative railway bonds..	89.10	89.32	78.53

Dividends Declared

Delaware & Bound Brook.—$2.00, quarterly, payable September 10 to holders of record September 3.

Philadelphia, Germantown & Norristown.—$1.50, quarterly, payable September 5 to holders of record August 21.

Abandonments

GREAT NORTHERN.—Division 4 of the Interstate Commerce Commission has approved this company's application for authority to abandon 1.79 miles of line in two segments in the vicinity of the Duluth, Minn., Union Depot, and in lieu thereof to operate under trackage rights over a 2.13-mile parallel line of the Northern Pacific, which will permit the use of heavier engines and otherwise afford more favorable operating conditions.

PENNSYLVANIA.—Division 4 of the Interstate Commerce Commission has authorized this company and the Lykens Valley Railroad & Coal Co., lessor, to abandon operation of and to abandon, respectively, an 0.88-mile segment of a branch at Williamstown, Pa.

RIO GRANDE & EAGLE PASS.—This road has applied to the Interstate Commerce Commission for authority to abandon a 14.47-mi. segment of its line extending from Laredo, Tex., to Gardner.

Railway Officers

EXECUTIVE

C. C. Dibble, general supervisor of stores of the New York Central, with headquarters at Indianapolis, Ind., has been promoted to assistant to the vice-president purchases and stores, with the same headquarters.

C. A. Skog, general manager of the Grand Trunk Western with headquarters at Detroit, Hich., has also been elected president and a director of the Detroit & Toledo Shore Line with the same headquarters, succeeding **W. J. Hogan,** whose death on June 26 was reported in the *Railway Age* of July 1.

Col. C. E. Reynolds of Toronto has been named by Premier Drew of Ontario as full-time chairman of a new commission in charge of the province-owned railway, the Temiskaming & Northern Ontario. His headquarters will be at North Bay. Other members of the commission are **Reginald A. Aubert** (an employee of the railway who is also general chairman of the stationary firemen's union) and **Robert S. Potter.**

Vernon A. Hewitt, whose promotion to assistant to the chief executive officer of the Chicago, Indianapolis & Louisville, with headquarters at Chicago, was reported in the *Railway Age* of July 29, was born at Rensselaer, Ind., on September 2, 1895, and entered railway service in April, 1914, as a stenographer of the C. I. & L. at Lafayette, Ind. In 1916 he was promoted to secretary to the general superintendent at Chicago, resigning in 1918 to take employment with a legal firm in Chicago. On August of that year he returned to the C. I. & L. as secretary to the president, with headquarters at Chicago, and in 1920 he was appointed chief clerk of the president and the trustees. On April 1, 1939, Mr. Hewitt was promoted to executive chief clerk, and in November, 1940, he was further advanced to office manager, executive department, with the same headquarters, the position he held at the time of his new appointment.

Joseph H. Butler, traffic executive of the Railway Express Agency, with headquarters at New York, has retired effective

Joseph H. Butler

August 31, after 54 years of service. An authority on loss and damage claim prevention matters, he has been liaison officer of the company in its many contacts with the shippers' boards, traffic and trade groups, and transportation organizations. Mr. Butler was first employed as an office boy of the Northern Pacific Express Company in 1890. Five years later he became clerk of the National Express Company, and subsequently served in many positions, rising to division superintendent. In December, 1916, he took over the post of assistant in the office of the vice-president and general manager. In June, 1917, he was assigned to loss and damage prevention work, establishing a special bureau for that purpose. When a department of public relations of the consolidated express companies was created in March, 1924, Mr. Butler was appointed general manager, and five years later, when the Railway Express Agency assumed ownership and operation of the service, he continued in the same capacity. He was appointed traffic executive in 1936, and held that post until his recent retirement.

FINANCIAL, LEGAL AND ACCOUNTING

J. E. Pearce has been appointed assistant secretary and assistant treasurer of the Virginian, with headquarters at Norfolk, Va., succeeding **J. B. Tuggle,** deceased.

Martin L. Cassell, Jr., and **Eaton Adams,** assistant general attorneys of the Chicago, Rock Island & Pacific, with headquarters at Chicago, have been promoted to general attorneys, with the same headquarters.

OPERATING

Fred A. Dawson, division superintendent of the New York Central, has been appointed to the post of manager, freight transportation, at New York, to succeed **Carl L. Jellinghaus,** whose promotion to vice-president and general manager was reported in the August 19 *Railway Age.* Mr. Dawson, who was born at Lima, Ohio, on July 1, 1891, entered railroading on January 1, 1910, as clerk in the office of the superintendent of freight transportation, Cleveland, Cincinnati, Chicago & St. Louis (now part of New York Central) at Indianapolis, Ind. After working in the traveling agent's office, Mr. Dawson became chief clerk to the superintendent of car service on April 1, 1917. Three months later he was named inspector of transportation for the general superintendent at Indianapolis, and on January 1, 1918, he became supervisor of freight loading for the superintendent of freight transportation, at the same location. He was appointed chief clerk to superintendent freight transportation on March 1, 1925, and superintendent of car service on June 1, 1929. Named assistant superintendent of freight transportation in 1929, and superintendent of freight transportation at Indianapolis in September, 1937, Mr. Dawson became division superintendent of the terminal division at Cincinnati, Ohio, on December 1, 1942. On January 11, 1943, he was

Fred A. Dawson

furloughed to the United States Government as assistant deputy solid fuels administrator for war at Washington, D. C. He returned to the New York Central on January 1 of this year as superintendent of the Ohio division at Springfield, Ohio, a

capacity in which he served until his present appointment as manager, freight transportation, at New York.

TRAFFIC

John Callahan has been appointed division passenger agent of the Seaboard with headquarters at West Palm Beach, Fla. He succeeds **F. E. Hoffman,** deceased.

Willis P. Tuller, assistant freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie (Soo Line), with headquarters at Minneapolis, Minn., has resigned to engage in other business.

Lyle L. Schoonover has been appointed general agent of the Duluth, South Shore & Atlantic and the Mineral Range at Buffalo, N. Y., and **M. L. Olmstead** has been named general agent of that road at Chicago.

F. S. Vance, traveling passenger agent of the Illinois Central and the Central of Georgia, with headquarters at Birmingham, Ala., has been promoted to district passenger agent of the two roads, with the same headquarters, succeeding **J. O. Linton,** who has retired.

Harold L. Johnson, commercial agent of the Erie, with headquarters at Chicago, has been promoted to division freight agent, with headquarters at Huntington, Ind., succeeding **Frank C. McCarthy,** whose death on July 27 is reported elsewhere in these columns.

PURCHASES AND STORES

W. F. Oster, supervisor of stores of the Peoria & Pekin Union, with headquarters at Peoria, Ill., has been promoted to purchasing agent, with the same headquarters.

Alvin S. McKelligon, whose retirement as general storekeeper of the Southern Pacific, with headquarters at San Francisco, Calif., was reported in the *Railway Age* of August 19, was born at Omaha, Neb., on March 11, 1878, and received his higher education at Christian Brothers College, Santa Fe, N. M. He entered railway service in April, 1897, as a caller in the transportation department of the Southern Pacific Lines in Texas and Louisiana at El Paso, Tex. He later served as a clerk of the stores department, locomotive fireman, timekeeper, and chief clerk of the division storekeeper at various points of the road. In September, 1903, Mr. McKelligon was promoted to division storekeeper, with headquarters at Tucson, Ariz., and in 1911 he was transferred to San Francisco. One year later he was advanced to district storekeeper with headquarters at Brooklyn, Ore., later serving in the same capacity at West Oakland, Calif., and Sacramento. In June, 1918, he was promoted to the position he held at the time of his retirement.

Harold J. Smith, whose promotion to general storekeeper of the Southern Pacific, with headquarters at San Francisco, Calif., was reported in the *Railway Age* of August 19, was born on December 2, 1887, and entered railway service on October 8, 1903, as a stock clerk of the Chicago & North Western at Fond du Lac, Wis. In 1909 he went with the Southern Pacific as a clerk in the general stores department of the Southern Pacific at West Oakland, Calif., subsequently serving as stores inspector, with headquarters at San Francisco. In September, 1913, he was promoted to division storekeeper, with headquarters at Dunsmuir, Calif., and six years later he was transferred to Portland, Ore. On December 1, 1921, Mr. Smith was advanced to chief clerk to the general storekeeper, with headquarters at San Francisco, and in June, 1935, he was promoted to assistant general storekeeper, with headquarters at El Paso, Tex. On November 1, 1941, he was transferred to Sacramento, Calif., remaining in that location until his new appointment.

Harold J. Smith

S. L. Bouque, assistant to the general storekeeper of the Southern Pacific, with headquarters at San Francisco, Calif., has been advanced to assistant general storekeeper, with headquarters at Sacramento, Calif., succeeding Harold J. Smith. Mr. Bouque was born on August 8, 1893, and entered railway service on August 20, 1910, as an office boy in the stores department of the Wabash, later serving as voucher clerk. In September, 1912, he went with the Southern Pacific as a disbursement clerk at West Oakland, Calif., subsequently serving as store inspector, head clerk of the special inventory bureau, assistant chief clerk and chief clerk, with the same headquarters. On September 1, 1921, Mr. Bouque was promoted to foreman of stores at West Oakland, and three years later he was advanced to chief clerk of the general stores at Sacramento. In September, 1926, he was further promoted to assistant district storekeeper, with headquarters at El Paso, Tex., and in September, 1929, he was appointed stores inspector at San Francisco. In June, 1931, Mr. Bouque was advanced to general inspector of stores and supply train service, with the same headquarters, and on June 1, 1942, he was promoted to the position he held at the time of his new appointment.

S. L. Bouque

OBITUARY

Frank C. McCarthy, division freight agent of the Erie, with headquarters at Huntington, Ind., died in that city on July 27.

Cyrus M. Duke, who retired in 1938 as assistant to the chief operating officer of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, died in a hospital in that city on August 21.

A. W. Osborne, superintendent of the Russell division, Chesapeake & Ohio, with headquarters at Russell, Ky., died on August 12. Mr. Osborne's appointment was announced in the *Railway Age* of June 24, 1944, and a sketch of his career appeared in the July 22 issue.

Albert John County, who retired in December, 1938, as vice-president in charge of finance and corporate relations of the Pennsylvania, died on August 20 at his summer home, South Bristol, Me. Mr. County was born at Dublin, Ireland, August 1, 1871, coming to America in 1890, and he was graduated from the University of Pennsylvania in 1908 with a B. S. in Economics degree. In 1885 he entered railroading with the Great Southern & Western as a clerk in the purchases and stores department at Dublin. His American career began when he became a clerk in the secretary's department of the Pennsylvania, in 1890. Eight years later he became chief clerk on that road, and in 1900 was named assistant to the secretary. The following year he was appointed assistant secretary, and also superintendent of the Pennsylvania's Employees Saving Fund. From 1906 until 1916 Mr. County was assistant to Samuel Rea, as assistant to vice-president and special assistant to president, also becoming vice-president of the Northern Central in 1914. In 1916 he was named to the post of vice-president in charge of accounting of the Pennsylvania; in 1925 he was appointed vice-president in charge of treasury and accounting departments; and in 1929 he became vice-president in charge of finance and corporate relations. This post he held until his retirement in 1938. Mr. County was president, vice-president, or director of nearly all the Pennsylvania's subsidiaries, and was a director of the Pennroad Company and the Norfolk & Western, and vice-president of the Pennsylvania Tunnel & Terminal Railroad. He also was a director of the New York Connecting Railroad, and became a director of the Pennsylvania in 1920. He was author of several pamphlets on various economic subjects pertaining to railroads.

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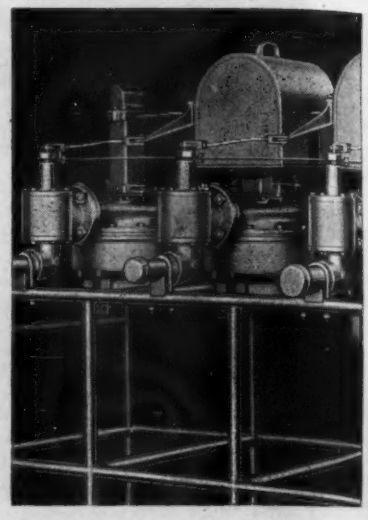
Here's a Bowser Liquid Control Installation that PAYS 100% DIVIDENDS ANNUALLY

When plant equipment can be written off in three or four years, that's a good record. When it can be written off in less than a year . . . and pays 100% dividends thereafter . . . it's likely to be Bowser Liquid Control Equipment. Here's a typical case history:

A nationally known plant in New York State installed a Bowser 2-meter Soluble Oil Proportioner for grinding and cutting solutions used in seven different departments. Previously the solutions were mixed in open drums and distributed manually.

Results . . . 1. Three laborers, one for each shift, were released for other work. Annual saving—$9,360.00. 2. Soluble oil consumption was reduced 10%. Annual saving—$900.00. The first year's savings on labor and oil far more than paid for the entire installation. After that, it's "velvet."

The same standard of excellence in Bowser equipment for the fueling of gas and Diesel electric engines has made it equally outstanding in that field. A Bowser unit will pump 800 to 850 gallons or more in 4 to 5 minutes, which is a big help in maintaining wartime schedules. Accounting Departments value highly the Bowser Recording Printer Meter, which automatically prints up to 8 copies of the delivery record. Write today for detailed information. BOWSER, INC., Fort Wayne 5, Indiana.



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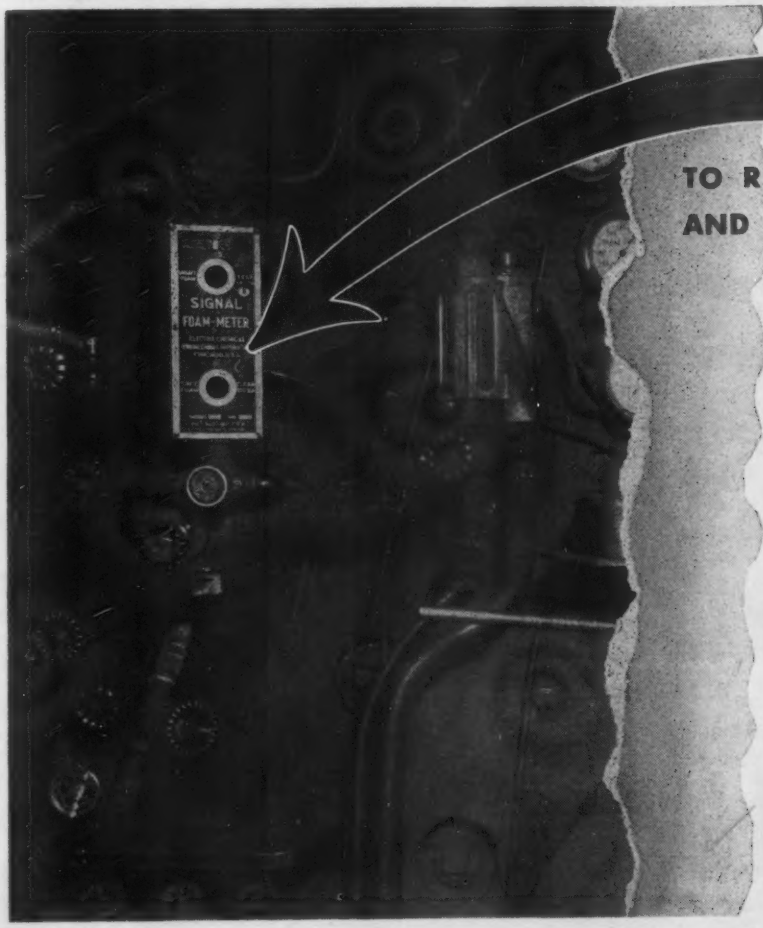
The Name That Means Exact Control of Liquids

Not only has Bowser's war production earned the Army-Navy E . . . Bowser equipment has helped earn it for scores of other companies.



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TO REPORT AUTOMATIC BLOWDOWN AND WATER LEVEL INSIDE THE BOILER

Engineers do not have to depend upon a "Sixth Sense" to determine when to blow down. This illuminated panel gives the signal when automatic blowdown is taking place. It also indicates water level inside the boiler.

Should the water rise to an unsafe level, which under ordinary operation without the foam collapsing system would result in carry-over in the shape of foam or mist, the device automatically blows down.

Thus by preventing the maintenance of excessive water levels which occur when water is traded for steam *the quality of the steam is improved.*

Full information about the system and method of installation in your locomotives will be furnished upon request.

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FOAM-COLLAPSING
BLOWOFF SYSTEM

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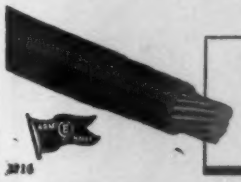

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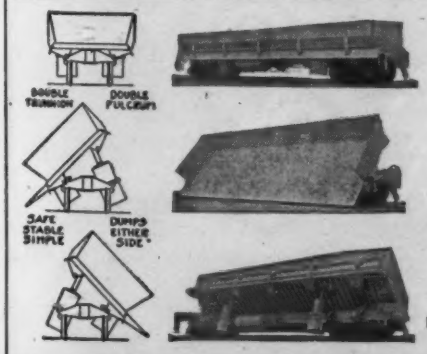

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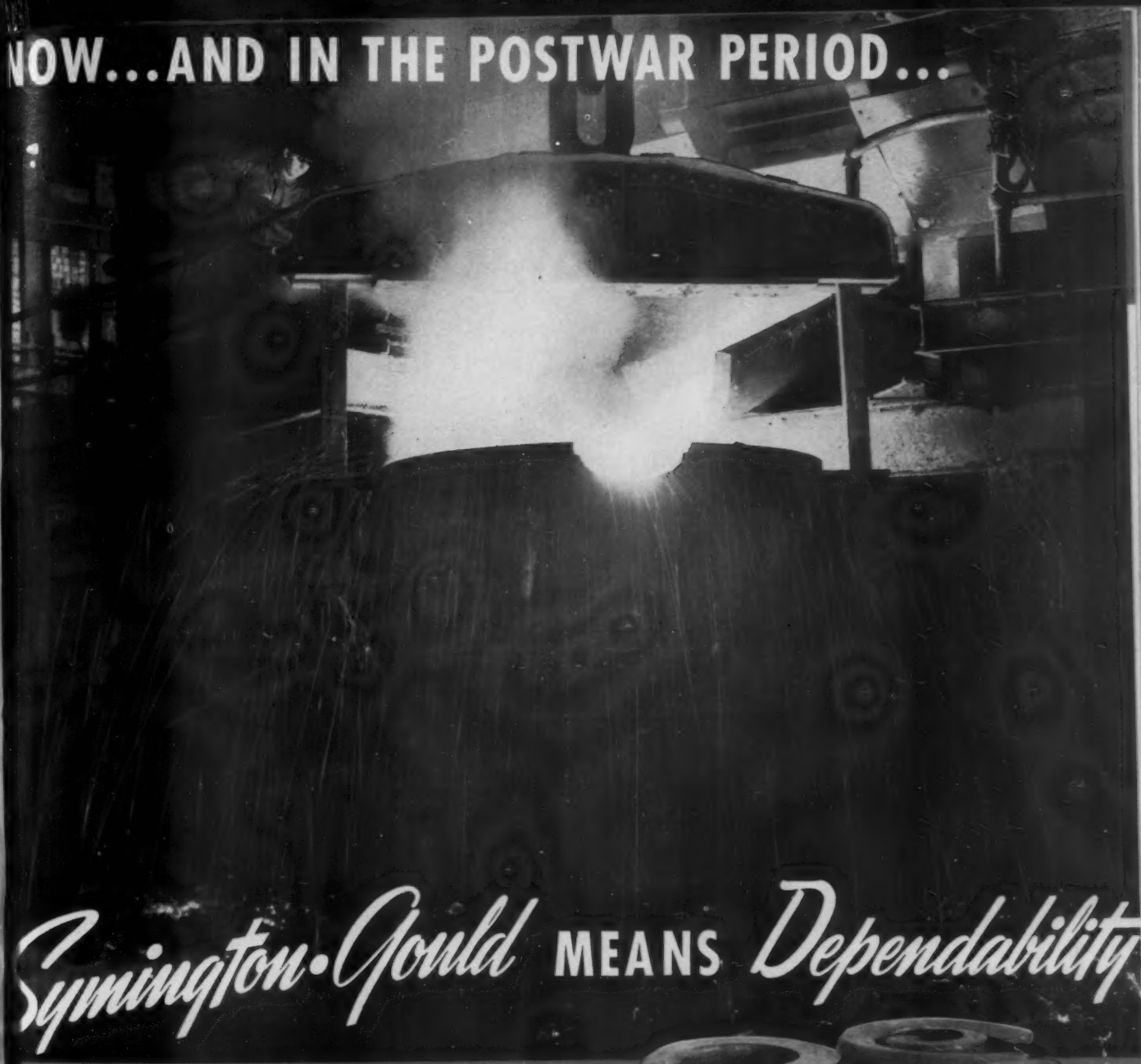

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Missouri Pacific saves 1 minute per mile with CENTRALIZED TRAFFIC CONTROL

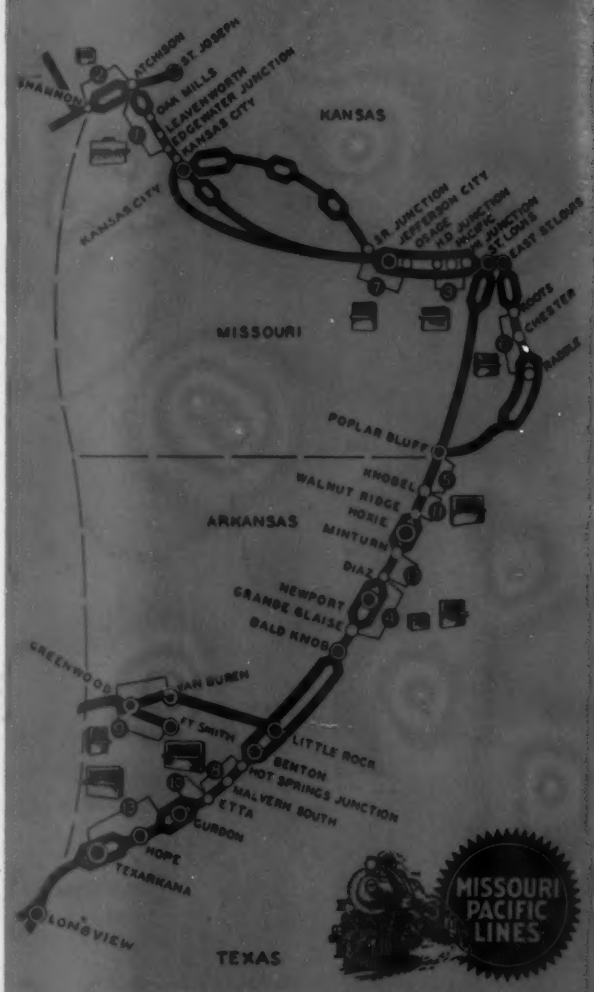
The Missouri Pacific has in service 13 installations (428 track miles) of G-R-S CENTRALIZED TRAFFIC CONTROL, the 13th installation (Gurdon, Arkansas to Texarkana, 59.7 miles) having been placed in service in March of this year.

Each installation has shown an increase in track capacity as well as substantial train-time savings. For instance, Mr. L. S. Werthmuller, Signal Engineer, states, "A comprehensive study of comparable gains has not yet been completed, but it seems safe to say that on the Arkansas Division our trains are getting over our 324.6 miles of roadway, (Poplar Bluff, Mo., to Texarkana) about five hours faster than would be possible without CTC."

Missouri Pacific trains now travel from Poplar Bluff, Mo. to Longview, Texas, entirely on signal indication without train orders. (From Texarkana to Longview, Texas, these trains travel on Texas & Pacific rails — also equipped with G-R-S CENTRALIZED TRAFFIC CONTROL). This is the world's longest continuous stretch of track over which trains operate without train orders.

The Missouri Pacific started installing CTC fifteen years ago. The first installation was placed in service in December, 1929 (Edgewater Jct. to Atchison, Kansas — 43.0 miles). Eight installations were completed and were in service when the U. S. entered the war. In the past two and one-half years they have completed five more installations covering 163.4 miles, thus obtaining a track capacity practically equal to double track.

G-R-S CENTRALIZED TRAFFIC CONTROL can give you the same benefits in train-time savings and increased track capacity that the Missouri Pacific has received from their installations.



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Unit	In Service	Installation Limits	Track Mileage	Location of Machine
1	12/29	Edgewater Jct. to Atchison, Kan.	43.0	Leavenworth, Kan.
2	6/30	Atchison to Shannon, Kan.	10.3	Atchison, Kan.
3	3/31	HD Jct. to HI Jct., Mo.	67.4	Pacific, Mo.
4	7/50	Diaz to Grande Glaise, Ark.	30.0	Newport, Ark.
5	2/37	Poplar Bluff, Mo. to Knobel, Ark.	42.0	Knobel, Ark.
6	8/38	Roots to Raddle, Ill.	28.8	Chester, Ill.
7	9/40	Osage to SR Jct., Mo.	24.5	Jefferson City, Mo.
8	11/40	Hot Springs Jct. to Etta, Ark.	29.3	Malvern S., Ark.
9	4/42	Van Buren to Ft. Smith, Ark.	10.6	Greenwood Jct., Okla.
10	2/43	Etta to Gurdon, Ark.	27.1	Malvern S., Ark.
11	5/43	Knobel to Walnut Ridge, Ark.	24.8	Knobel, Ark.
12	7/43	Minturn to Diaz, Ark.	30.5	Newport, Ark.
13	3/44	Gurdon to Texarkana, Ark.	59.7	Hope, Ark.
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